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APOPLEXY ASSOCIATED WITH BRAIN TUMOURS*

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IN RECENT years there has been great interest in the investigation and treatment of the "stroke" syndromes. However, only cursory attention has been given to the small but definite proportion of cases where massive spontaneous bleeding has occurred in brain tumours. Occasionally hemorrhage associated with an unheralded tumour is responsible for the investigation of a patient considered to be suffering from one of the more common causes of stroke. Although hemorrhage had often been held responsible for the sudden exacerbation of symptoms in a tumour patient,[1] it is generally agreed[2-8] that, far from being common, the incidence of this form of cerebral bleeding supports Cushing's opinion that "A large hemorrhage in a tumour in my experience is an extremely uncommon thing."[2] In two early series[2-7] the frequency was 3.74% and 9.6% respectively. Moreover, in Greenfield's review of spontaneous intracranial bleeding,[4] brain tumour was responsible in 5.5% of his own cases and 1.95% of Russell's series.

During the period 1952 to 1958, in a series of 236 verified intracranial tumours, massive hemorrhage associated with the tumour was responsible for urgent investigation and treatment in 18 cases or 7.6%. A consideration of these patients forms the basis of this report.

Consideration of Diagnosis

It is interesting that the referring diagnosis mentioned tumour in only four cases. After examination, and before definitive investigation, six more patients were considered to have tumours. Special investigation allowed the diagnosis to be made in a further five patients. Thus, in 15 patients the diagnosis of tumour was suspected before operation or autopsy. In the remaining three patients the presence of a tumour was not suspected, the diagnoses being ruptured cerebral aneurysm, tuberculous meningitis and post-traumatic posterior fossa clot, respectively.

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Age and Sex

The age range was 20 months to 65 years, with an average of 35.5 years. There were 11 male and 7 female patients.

Absence of Premonitory Symptoms

Definite premonitory symptoms were considered to be absent in 8 cases, and in 3 more they were obscure, chiefly in the form of intermittent headache and vomiting.

CASE 1.—R.C., a 5-year-old child, while talking to his mother on the back porch, suddenly collapsed for no apparent reason and fell off the steps, striking his head. He was carried inside, where he vomited, complained of pain over his forehead and became progressively more drowsy.

Examination revealed a stuporous child with shallow respirations, stiff neck and slurred speech. His eye findings were not remarkable, the deep reflexes were brisk and equal and there were bilateral extensor plantar responses. Skull radiographs were non-contributory.

For a period he improved, responding quite well to his parents. Then, approximately four hours after admission, he suddenly became deeply unconscious and died within a few minutes. Autopsy revealed a large clot in the centre of a medulloblastoma of the cerebellum (Fig. 1).

Trauma appeared to be the cause of this boy's intracranial catastrophe until the sequence of falling, seconds prior to his injury, was established. His plight undoubtedly began as a massive hemorrhage into the previously silent tumour.

CASE 2.—G.P., a 41-year-old farmer, had been perfectly well until he was found unconscious and with facial injuries beside his tractor. He remained unconscious for an hour, and was drowsy and confused for the next 12 hours. After one week he was discharged from the local hospital. Four days later he was admitted to the neurosurgical service with severe frontal headache and marked personality change. Examination revealed choked discs, a mild right hemiparesis and expressive dysphasia.

A left carotid arteriogram demonstrated the vascular pattern of a frontal lobe tumour. At craniotomy, a blood clot 5 cm. in diameter was removed with the surrounding infiltrating tumour (astrocytoma, grade II).

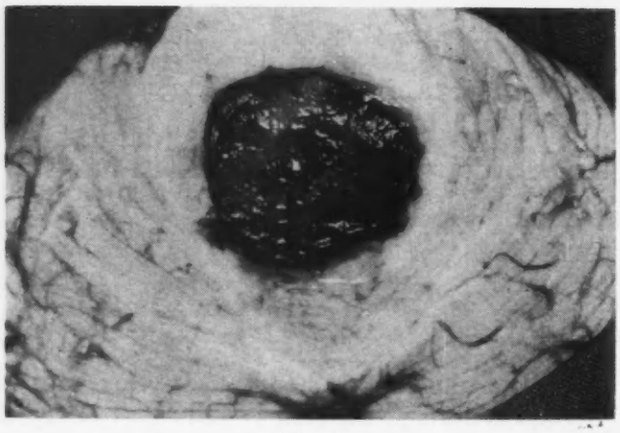

Fig. 1

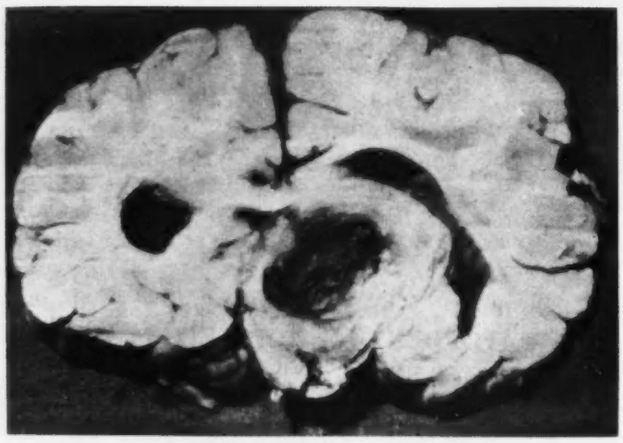

Fig. 2

Apoplexy was the initial phase of his previously unsuspected neoplasm, although the circumstantial evidence of head injury suggested a subdural hematoma before angiography.

Presence of Premonitory Symptoms

In seven cases definite symptoms preceded the onset of the hemorrhage for periods varying from 20 days to three years. These consisted of headache and vomiting, frequently in combination, with evidence of focal disturbance of brain function such as seizures, paresis, dysphasia or personality change.

CASE 3.—V.McT., a 35-year-old teacher, was well until two months before admission. She suffered a "flu-like" illness followed by occasional headache, defective memory, decreased vision and coldness of the right side of her body.

Examination disclosed absent right abdominal reflexes and questionable choking of the left optic disc. The cerebrospinal fluid was clear and under a pressure of 170 mm. of water.

Five days after admission, while talking to her husband on the telephone, she suddenly complained of blindness and within 10 minutes was in deep coma with bilateral fixed dilated pupils.

Bilateral carotid angiography suggested an internal hydrocephalus, but vertebral angiography did not demonstrate the lesion. She stopped breathing and was given artificial respiration.

At immediate craniotomy, bloody fluid was obtained from the ventricles. Removal of fresh clot from the fourth ventricle and cisterna magna restored normal respirations and blood pressure, but she succumbed seven hours later. Autopsy revealed hemorrhage into a malignant astrocytoma of the hypothalamus (Fig. 2).

In this case obvious symptoms preceded the intracranial catastrophe.

Role of Hypertension and Trauma

None of the patients was known to have hypertension. Thus it appeared to play no part in the etiology of the hemorrhage.

Trauma was related in an obscure fashion in five cases (e.g. Cases 1 and 2). A possible relationship existed in the case of a 20-year-old housewife who struck her head against the bed, with no external injury or loss of consciousness, two days before acute hemorrhage into a secondary metastatic melanoma.

Clinical Signs

Worsening of the clinical picture occurred universally with the bleeding. In 11 patients it was associated with sudden loss of consciousness. The remaining seven patients complained of sudden increase in headache, usually associated with vomiting and other signs of local brain dysfunction. Drowsiness with personality change was prominent in this group.

Location and Size of Hemorrhage

The principal location of the hemorrhage was within the tumour in 15 cases, in the subarachnoid space in two and in the subdural space in one. One patient with disseminated metastatic melanoma had subdural and subarachnoid bleeding as well as a massive frontal lobe clot. Eleven patients had lumbar punctures and the spinal fluid was bloody in four. The intracerebral clot was at least 5 cm. in diameter in all cases.

The type and location of the tumours are shown in Table I.

TABLE I.

Type	*No.*	*Location*	*No.**
Malignant astrocytoma	10	Frontal	9
Benign astrocytoma	2	Temporal	5
Medulloblastoma	2	Parietal	3
Meningioma	1	Occipital	2
Chromophobe adenoma	1	Cerebellum	2
Metastatic melanoma	2	Pituitary	1
		Hypothalamus	1
		Sphenoid ridge	1

*It should be noted that some tumours extended into more than one "location".

Clinical Progress

The majority of the patients (14) were subjected to craniotomy, usually in urgent fashion because of rapid deterioration. Four deaths occurred in the early postoperative period, the result of irreversible coma with massive bleeding. Craniotomy was not done in four cases. Two of these were moribund; another was considered to have tuberculous meningitis; and a 50-year-old man, blind from a pituitary tumour apoplexy 21 years before, died after an abdominal operation. The survivors have lived for periods in keeping with the natural history of their particular types of tumours.

DISCUSSION

Massive hemorrhage associated with brain tumour was found in 7.6% of this series of 236 patients with intracranial tumours, representing a small but definite proportion of tumour cases. The preponderance of malignancy was striking, occurring in 14 cases. An important group of eight patients were considered to be perfectly well until massive bleeding occurred spontaneously from the unsuspected neoplasm. Moreover, the average age incidence of 35.5 years was under that usually seen in patients with apoplexy, except that associated with aneurysm or arteriovenous malformation. During this same period 173 other cases of spontaneous intracranial bleeding (subarachnoid hemorrhage) were investigated. Thus the proportion of bleeding tumours in the combined group was 9%; the proportion in previously unsuspected tumours was 4.2% (8 cases).

The pathogenesis of the hemorrhage has been considered at length.[5,6] Emphasis has been placed on the predominant association with rapidly growing tumours and the local extensive morphological changes in the walls of the tumour vessels, with endothelial proliferation, thrombosis, necrosis and tumour erosion with hemorrhage. In fact, it is surprising that the entity does not occur more commonly. Precipitating factors such as effort, hypertension,[2,9] and trauma[7, 10, 11] have been considered and found not to be influential, nor have they appeared to play a part in the present series.

The feature of sudden clinical worsening, so common in the natural history of malignant cerebral tumour, cannot always be ascribed to massive bleeding, as it occurred in only 7.6% of the present series. Oldberg[2] reports its association with exacerbation of symptoms in less than 1% of all cases, and confirms a similar occurrence with non-hemorrhagic tumours. For the most part it seems probable that intracranial pressure with coning reaches a stage not to be tolerated by the regions controlling vital functions — undoubtedly aggravated by occasional minor extravasations, thrombosis, cerebral edema, occlusion of the foramen of Monro or aqueduct of Sylvius. In addition a focal seizure may be mistaken for an apoplectiform attack.

SUMMARY

Massive spontaneous bleeding occurred in 18 of 256 cases of verified intracranial tumour — an incidence of 7.6%. The average age (35.5 years) is well below that of patients in the usual "stroke" group. The majority of the bleeding tumours were malignant: 14 cases (77.8%). The diagnosis was suspected or verified in 15 patients (83.4%) before operation or autopsy. Definite premonitory symptoms were absent in eight patients (44.4%) and hemorrhage occurred predominantly (83.4%) within the tumour. Hypertension and trauma were considered not to be related. Three case histories have been presented.

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PAGES OUT OF THE PAST: FROM THE JOURNAL OF FIFTY YEARS AGO

SURGICAL TREATMENT OF GASTRIC AND DUODENAL HEMORRHAGE

At the meeting of the British Medical Association in London, 1899, I reported a case of hematemesis that I had operated upon successfully. I became much interested in the pathology, morbid anatomy, and treatment of hemorrhage from the stomach and duodenum. As this was, so far as I could ascertain, the first case treated in Montreal by this method, I had a careful search made in the post mortem records of the Montreal General Hospital, and found that in a series of 2000 autopsies 15 had died of gastric hemorrhage. In five of these 15 cases the hemorrhage was from a gastric ulcer, and in four from a duodenal ulcer. Of the remaining six cases, one was due to rupture of an esophageal varix associated with thrombosis of the portal vein, and atrophy and sarcoma of the liver; one, from rupture of an esophageal varix associated with hepatic cirrhosis; two, to leucocythemia, and two, to rupture of aneurysms into the lower end of the esophagus. . . .

When Mr. Moynihan's book on "Abdominal Operations" appeared in 1905, I was surprised to find that a gastroenterostomy had, in all his cases, been followed by complete and permanent arrest of the hemorrhage. With his preliminary remarks regarding the serious condition of these patients, the difficulty and sometimes the impossibility of finding the ulcer, the plurality of ulcers in some cases, the adhesions to liver and pancreas in others, and the occasional continuance of the hemorrhage after the direct treatment, one must agree. It was difficult, however, to believe that a gastroenterostomy that could only succeed by rendering recurring distention of the stomach impossible, should be trusted when the blood came from the erosion of an artery, large enough to admit a probe, and especially when the gaping vessel lay in the bottom of a hard, cicatricial ulcer that one would not expect to be very contractile.—G. E. Armstrong, *Canadian Medical Association Journal*, 1: 104, February 1911.

IMMUNOTHERAPY OF A PATIENT WITH CHORIOCARCINOMA

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CLINICIANS have long been impressed with the fact that choriocarcinoma in the female may regress after removal of the primary tumour. Immunological factors might acount for this phenomenon.

Postgestational choriocarcinoma has its origin in placental tissue and thus owes its existence, in part at least, to the germ plasm of the consort. In this respect it differs from other malignant tumours and might be expected to occupy a position unique amongst tumours in its effects on the antibody-forming system. It can be considered analogous to a graft from the offspring to the mother, and to interact with the host like one of the transplanted tumours on which so much animal research is based. That such a graft should survive the attack of antibody for any length of time may seem surprising. However, a normal fetus is exposed to the same immunological hazards and only rarely, as in the case of Rhesus incompatibility, succumbs. Furthermore, transplantable tumours though eliciting antibodies are not necessarily destroyed by them. Thus, the persistence of the tumour does not, in itself, present an argument against its antigenicity.

That choriocarcinomas may elicit an antibody response is supported by the following facts:

Chemotherapy has been successful in the treatment of postgestational choriocarcinoma[1-8] but has been a failure in the case of male choriocarcinoma.[9] This raises the possibility that chemotherapy causes only partial destruction of the tumour and that complete destruction will ensue only if substances, freed by partial destruction, initiate an antibody response. The resulting antibody may then destroy the remaining tumour. In the male choriocarcinoma, derived entirely from autologous tissue, this secondary mechanism would be absent and chemotherapy would have only a transient effect.

Spontaneous regression of tumours has been ascribed to immune effects, but no evidence has been presented to support this contention. As already mentioned, the disappearance of metastases after removal of the primary tumour has been frequently reported.[10-12] A working hypothesis to explain the disappearance of metastases after removal of the primary tumour is as follows:

It is assumed that the tumour is antigenic and will remove antibody by combining with it. Before surgical removal of the primary tumour the antigen exceeds the antibody. However, after operation the position is reversed and the antibody is then free to act on the metastases and so effect a remission. This hypothesis assumes that primary and secondary tumours are similar in antigenic properties. However, if de-differentiation occurs, there is likely to be either partial or total loss of antigens. Obviously, if the tumour is undifferentiated to begin with or becomes so after chemotherapy, by a process of selection, then the absence of antigenic stimulus will permit the tumour to grow in a milieu free of antibody.

So far, there has been much speculation but little exploitation of the immunological method of treating patients with postgestational choriocarcinoma. One patient has been treated by Doniach *et al.*[13] A combination of chemotherapy, x-ray and active immunization led to a very marked improvement which could not be attributed to any one of these treatments. Doniach and his collaborators felt that the immunological therapy had helped in the recovery of the patient.

We propose to describe one case in which, after unsuccessful chemotherapy, subsequent treatment was confined entirely to immunotherapy, based on the following considerations:

If the tissue of choriocarcinoma differs in antigenic structure from that of the host, it would present an antigenic stimulus to the antibody-forming mechanism. The capacity for antibody synthesis is limited and cannot be increased beyond a certain quantity. The "foreign" tissue would release potential antigens and so stimulate formation of antibodies. A further supply of antigen administered by injection would increase antibody production only insofar as it might reach antibody-forming cells which are not accessible to the antigen of the metastases. It was, therefore, the intention to confine active immunization to three courses as in the case to be described, and to conduct it in such a way that antibody-forming cells throughout the body should be reached by the antigen. For this reason, immunization by both subcutaneous and intravenous injection was undertaken. It was considered that immunization would be most rewarding in the second and third courses and less useful subsequently, since the output of antigens from the metastases might be sufficient to maintain the synthesis of antibody.

One of the difficulties, both in active and passive immunization, is the absence of any information as to the antigens on the surface of the metastases. This problem presents itself in two aspects: Firstly, what was the best male tissue to use in immunization, and secondly, if a mixture of tissues was used as the antigen, which of the antibodies would be most useful?

Since an answer to these questions was not available, the choice of the antigen was decided by convenience. The immunization of animals was conducted in a manner which would induce the formation of antibodies to as large a number of antigens

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as possible. For active immunization, leukocytes of the consort were chosen. For the production of antibodies in rabbits, sperm from the consort was used.[cf. 14a]

It was proposed to rely on active immunization for partial remission of the disease as demonstrated by clinical and radiographic improvement and an appreciable fall in the output of urinary gonadotrophins. At this stage the passive antiserum was to be administered to dispose of the last traces of the disease. The efficiency of this antiserum could be assessed by its effect in terms of the criteria previously mentioned. Thus, an initial rise in urinary gonadotrophins would be expected from the disintegration of the remaining tumour tissue, followed by a fall to normal level. This initial rise in urinary gonadotrophins would serve as a test of the hypothesis.

The patient was readmitted on October 19, 1959, feeling somewhat tired but in good spirits. She was pale. Physical examination revealed no abnormalities apart from some questionable thickening within the left side of the pelvis. Routine examination of urine showed no abnormalities. Hemoglobin value was 11.3 g., red blood cells, 3,980,000/c.mm., white blood cells 7150/c.mm. The differential count showed 60% neutrophils, 30% lymphocytes, 9% monocytes, and 1% eosinophils. Platelets were 160,000/c.mm. Radiographic examination of the chest showed metastases in both lungs (Fig. 1). The urine contained 2000 and 5500 international units of chorionic gonadotrophins per 24 hours on two occasions.

The patient's blood was:

Group O M+N− S+s+ P− C+C^w−c+D+E−e+ K−k+ Kp(a?b+) Fy(a?b+) Le(a−) Jk(a?) Be(a−) Wr(a−)

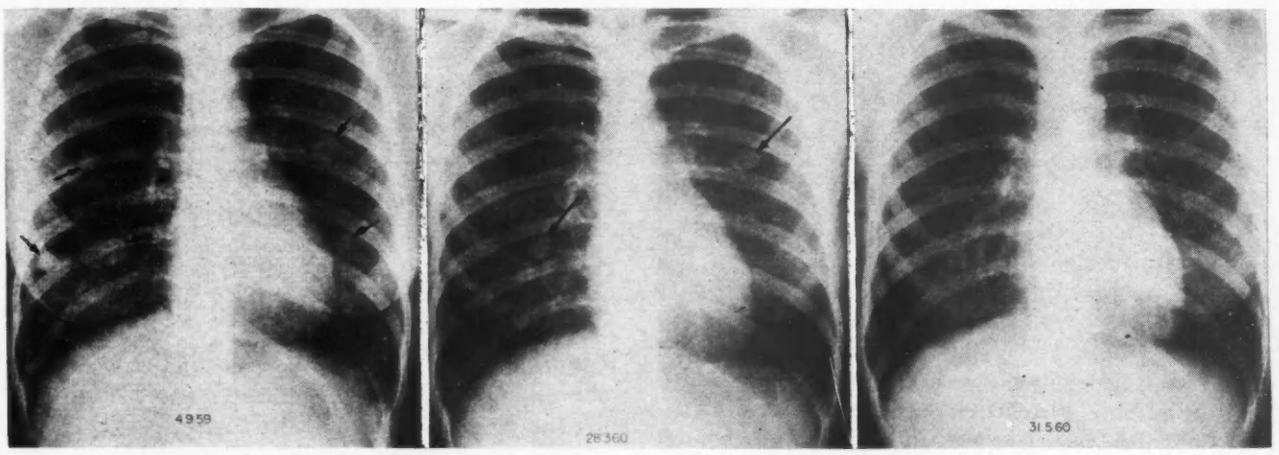

Fig. 1.—The appearance of the chest before active immunization, before passive immunization and after immunotherapy.

SUMMARY OF CASE HISTORY

Mrs. L.H., aged 20, gave birth to twins, one of which was stillborn, in February 1958. During May 1959, when two and one-half months pregnant, she began to feel unwell and had vaginal bleeding for several days. On June 15, she again noticed bleeding and was admitted to hospital in Sault Ste. Marie, where a hydatiform mole was passed. After dilatation and curettage of the uterus, the patient returned home and remained fairly well until the first week of July when she developed pain in the left shoulder and upper chest area. Roentgenogram of the chest on July 17 revealed metastatic disease; an abdominal hysterectomy was performed on August 9, 1959. The histological diagnosis was choriocarcinoma.

The patient carried on in fairly good health, but her appetite was poor and she occasionally experienced a dull ache in the anterior chest. She was referred to the Princess Margaret Hospital, Toronto, and received on three consecutive days, September 6, 7 and 8, intravenous injections of vincaleukoblastine sulfate[14b, 15] to a total dosage of 21 mg. No definite change was noted in her general condition, although there was a temporary decrease in the level of chorionic gonadotrophins in urine.

The blood of her husband was:

Group A_1 M+N−S+s+ P+ C+C^w−c+D+E−e+ K−k+ Kp(a−b+) Fy(a+b−) Le(a+) Jk(a−) Be(a−) Wr(a−).

On October 25, the buffy coat from 500 ml. of the husband's blood was removed, suspended in his plasma to a total of 65 ml. (13,500 white blood cells/c.mm.) and 0.5 ml. injected subcutaneously. Fifteen minutes later five subcutaneous injections of 3.5 ml. each were given in the thigh and arm. Almost immediately each injection area became reddened and warm to the touch. This started to disappear in about 15 minutes. One and a half hours later 1 ml. of the suspension was given intravenously. No reaction occurred and 10 minutes later 46 ml. of the white cell suspension was given slowly, by intravenous injection over a period of 45 minutes.

Four weeks later the above procedure was repeated, the patient receiving subcutaneous injections of 22 ml. and intravenous injections of 43 ml. (5400 white blood cells/c.mm.). Her general condition was unchanged but radiographs of her chest showed a slight decrease in the size of the metastatic tumour. Again on December 28 she received a further suspension of her husband's white blood cells, 10 ml. subcutaneously and 15 ml. intravenously (22,500 white blood cells/c.mm.).

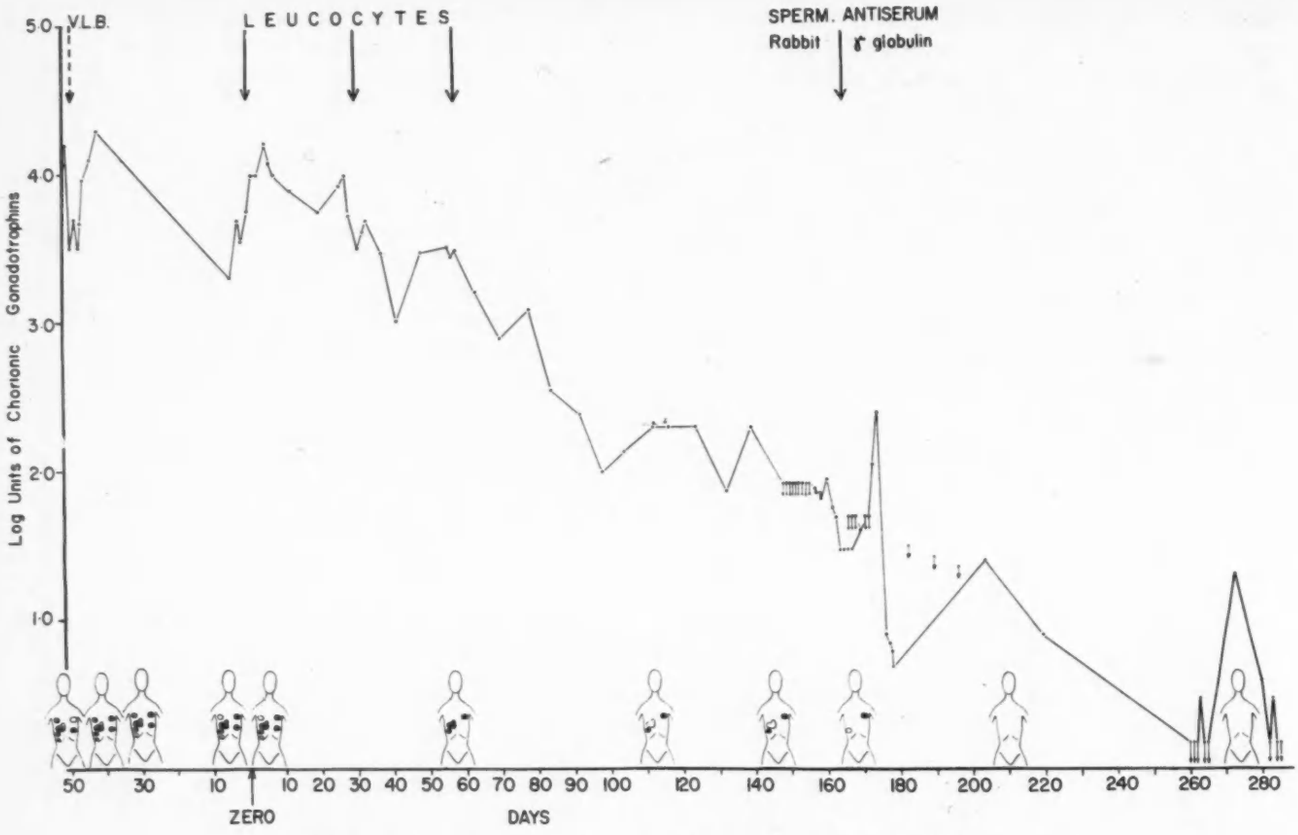

Fig. 2.—Changes in excretion of urinary gonadotrophin associated with treatment.

After discharge the patient's general health improved in that she felt less tired. The concentration of chorionic gonadotrophins in the urine fell steadily, there being only 40 units on April 14; radiographs of the chest also showed a reduction in the number of metastases (Fig. 1).

During the period of active immunization, antibodies had been produced in rabbits by immunization with the husband's spermatic fluid. The serum of the immunized animals was fractionated and concentrated[16] to give gamma globulin and was absorbed with the patient's leukocytes and red cells to remove antibodies to antigens common to husband and patient.

On April 11, the patient showed a slight reaction to the skin test with the rabbit gamma globulin but the conjunctival test was negative. Ten ml. of the gamma globulin was then injected intravenously. The patient developed a severe reaction with decrease in blood pressure, headache, nausea, vomiting and diarrhea. Six hours after the injection a further skin test gave an immediate and fairly marked reaction. The patient was observed carefully for the next two weeks. Areas of inflammation appeared temporarily at the sites of subcutaneous injections. She had no further reaction to the treatment and has since shown steady improvement in her general condition. It will be noted from Fig. 2 that there was a temporary rise in chorionic gonadotrophins and thereafter a drop to normal figures of less than 10. Seven months after treatment the patient is well. A radiograph of the chest shows no evidence of metastatic disease (Fig. 1), and urinary chorionic gonadotrophins remain within normal limits.

DISCUSSION

Fig. 2 shows a steady decline in the amount of chorionic gonadotrophins excreted in the urine during the course of immunization with leukocytes and a corresponding decrease in the number of pulmonary metastases as observed by roentgenogram. Administration of sperm antiserum was followed by a transient rise in chorionic gonadotrophin excretion and by the complete disappearance of metastases. It is felt that the immunotherapy has been effective. The possibility of spontaneous regression cannot be excluded. It is difficult to arrive at an estimate of the frequency of spontaneous regression of choriocarcinoma. Some workers have suggested that meticulously studied and documented examples of spontaneous regression are to be regarded "as the rarest of cases".[17] However, the disappearance of metastases after the removal of the primary tumour is a widely accepted though not a constant phenomenon.

In the case described, disease had progressed during the four-month interval between hysterectomy and the time of initiating immunological therapy. Improvement coincided with immunotherapy, suggesting that such treatment was effective and worthy of trial in other similar cases.

SUMMARY

A hypothesis is proposed and evidence adduced that postgestational choriocarcinoma elicits specific antibodies. The treatment of one patient suffering from

choriocarcinoma by means of active and passive immunization is described. While it appears that this treatment was effective, the possibility of spontaneous regression must be considered. It is felt that treatment by immunotherapy is worthy of further trial.

We wish to thank Dr. Charles H. Shaver of Sault Ste. Marie for referring this case and for his co-operation. The financial support given to this work by the Ontario Cancer Treatment and Research Foundation and by the National Cancer Institute of Canada is gratefully acknowledged.

Urinary gonadotrophin assays were carried out by Dr. A. E. Dyer of the Connaught Medical Research Laboratories.

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EXPERIENCES WITH ANTIMETABOLITES IN THE TREATMENT OF GENITOURINARY CARCINOMA*

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THE ADVANCED inoperable cancer patient presents many difficult problems. Although the response of the patient to treatment may be uncertain and improvement only temporary, the physician should be willing to apply the limited therapeutic methods that are available.

The authors have been particularly interested in that group of anticancer drugs called the antimetabolites. These may be grouped as: (1) folic acid antagonists, (2) purine antagonists, (3) glutamine antagonists, and (4) pyrimidine antagonists.

As their names suggest, these compounds are all analogues of cell metabolites and produce their therapeutic effect by a competitive interference with mitosis.

Our clinical experience has been limited mainly to the folic acid antagonists, although one patient was treated with the vitamin analogue 6-aminonicotinic acid (6 AN). Many antifolics have been developed since 1948, but only two, aminopterin (4-aminopteroylglutamic acid) and methotrexate (4-amino-N^{10}-methylpteroylglutamic acid), remain clinically popular. These antifolics interfere with the synthesis of nucleic acid in the tumour cell nucleus by preventing the reduction of folic acid to folinic acid (citrovorum factor); 6-aminonicotinamide competes with the vitamin nicotinamide, disrupting the cellular coenzyme system.

Li, Hertz and Bergenstal,[1] at the National Cancer Institute, originated the methotrexate treatment of female choriocarcinoma, but they had little response in treating the testicular choriocarcinoma. The explanation[2] advanced for this difference is that the choriocarcinoma of the uterus is a homologous tumour transferred from the fetus to the mother. There is likely some immunological defence mechanism against the tumour that aids the chemotherapeutic agent in arresting the disease. The male counterpart is gonadal and entirely autogenous.

Four unusual cases encountered in the past two years prompted the authors to review this problem, and form the basis of this paper.

CASE 1.—The first patient was a 42-year-old man who had a huge right hypernephroma removed in July 1958. At the time of operation, through a thoracoabdominal incision, large tumour masses could be seen in the lower lobe of the right lung and secondaries were removed from along the spermatic cord. The preoperative chest radiograph (Fig. 1) showed classical bilateral "cannon-ball" metastases. A sternal biopsy showed a normal bone marrow. He was then treated with 6-aminonicotinamide, 25 mg. daily for seven days (0.3 mg./kg. body weight). By June 1959, the lung fields had cleared and the patient was clinically free of disease. He has remained well to date, having been seen within the month previous to this report. His current chest radiograph is illustrated in Fig. 2.

The next three cases are all of patients with proved embryonal carcinoma of the testicle showing some degree of choriocarcinomatous change.

CASE 2.—A 20-year-old man underwent a retroperitoneal and iliac node dissection in May 1958, ten days after a right orchidectomy had revealed an embryonal

*Presented to the Royal College of Physicians and Surgeons of Canada, Southwestern Ontario Regional Meeting, London, Ontario, November 15-16, 1960.

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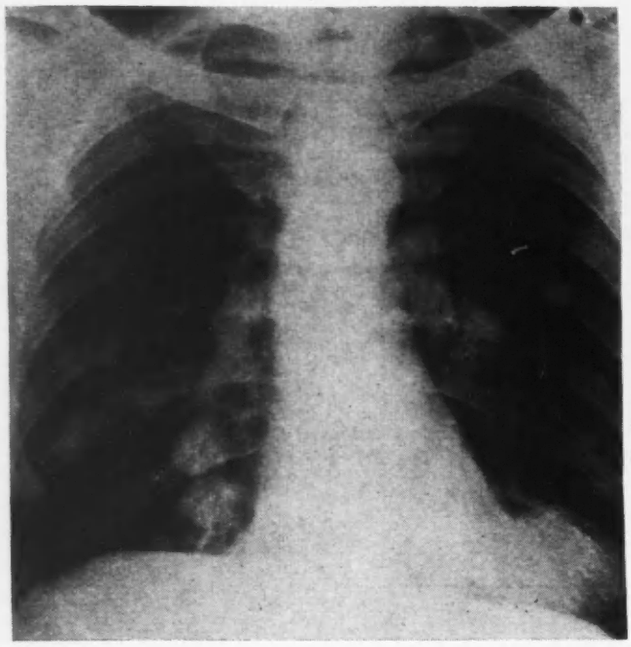

Fig. 1—Preoperative chest radiograph showing classical cannonball metastases.

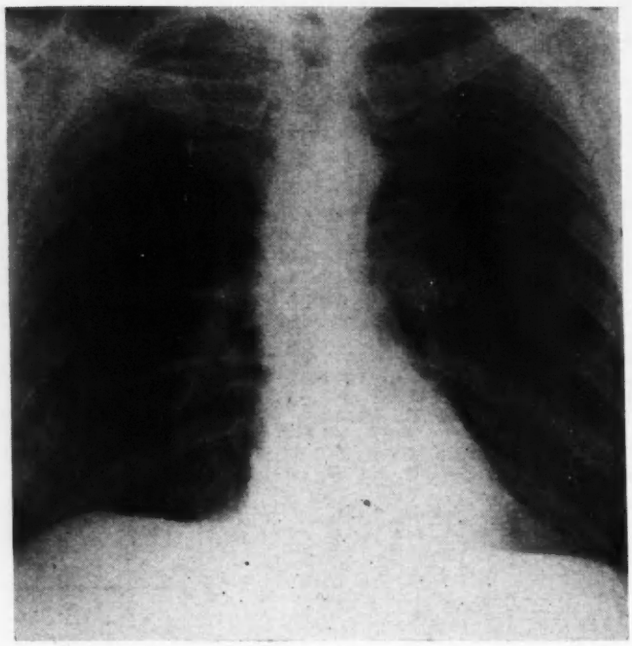

Fig. 2—Current chest radiograph showing complete disappearance of metastases.

carcinoma. All the nodes were reported as negative, and since his chest was clear, he was given cobalt-60 (Co^{60}) beam therapy and sent home. Four months later he appeared with supraclavicular, axillary and inguinal nodes as well as an epigastric mass and multiple subcutaneous nodules. His bone marrow appeared normal on biopsy. After another course of Co^{60} therapy he was given aminopterin 3 mg. daily for 6 days: then because of severe toxicity the drug was discontinued. The subcutaneous nodules and nodes rapidly disappeared and the patient steadily improved. When re-examined in August 1960, he was clinically and radiologically free of disease.

CASE 3.—A 26-year-old man had an orchidectomy and subsequent retroperitoneal node dissection in July 1959 for embryonal carcinoma of the left testicle. All nodes were reported as negative and his chest radiograph was clear. He was given Co^{60} therapy and discharged. In six months he had developed a large left inguinal mass which was proved to be a metastatic lesion. His Aschheim-Zondek test was negative. He received a course of Co^{60} to the groin area. Approximately one year after diagnosis, in June 1960, pulmonary metastases appeared (Fig. 3). He was given methotrexate 5 mg. daily for five days, and then maintained on 2.5 mg. daily. Within about one month, this man's chest radiograph had cleared and it has continued to remain clear (Fig. 4).

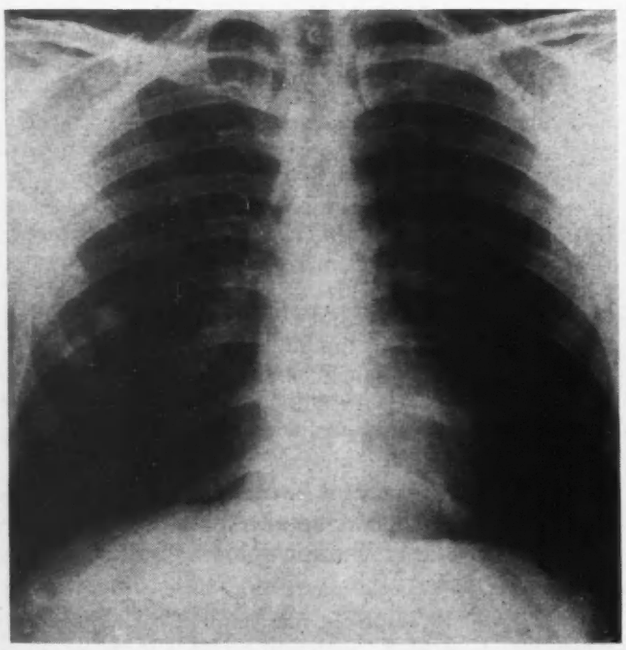

Fig. 3—Chest radiograph one year after diagnosis showing pulmonary metastases.

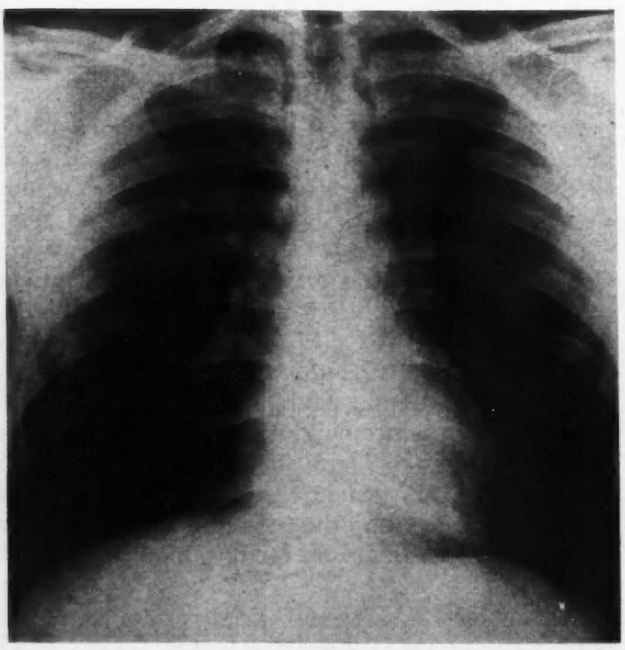

Fig. 4—Chest radiograph one month after treatment showing complete resolution of lesions.

CASE 4.—A 38-year-old flight-sergeant had a seminoma of the left testicle removed in June 1958. At this time he was given a combination of nitrogen mustard and Co^{60} therapy. He was well until November 1959, when his remaining testicle became enlarged and hard. Orchidectomy revealed an embryonal carcinoma with choriocarcinomatous change, i.e. a second primary testicular tumour. He was given a course of nitrogen mustard therapy. One month later he was started on 2.5 mg. of methotrexate, because his Friedman test was still positive. Within three months his Friedman test was negative and has remained negative. He shows no demonstrable evidence of disease.

In four other cases of embryonal carcinoma of the testicle with widespread metastases, methotrexate, either alone or with precedent 6 AN therapy, was of no value in producing a remission.

DISCUSSION

Toxic effects are to be expected when antimetabolites are employed, but these effects can usually be well controlled. In this series of eight cases there were no deaths due to treatment. The common toxic effects are buccal ulceration, skin rash, alopecia, diarrhea and bone marrow depression.[3] Each one of the aforementioned four patients showed some degree of toxicity. All had buccal ulceration and leukopenia. One of the patients with a testicular tumour had a severe toxic reaction on the fifth day of aminopterin therapy. His white blood cell count dropped to 600 per c.mm. and he almost died. The toxic effects are treated by stopping the drug, by administration of fresh whole blood transfusions, and by the use of specific antidotes. Citrovorum factor (folinic acid) is a specific antidote for the antifolic agents. The vitamin nicotinamide given in massive doses will counteract 6-aminonicotinic acid toxicity.

SUMMARY

The authors have employed antimetabolite therapy in eight patients with advanced inoperable genitourinary carcinoma. The agents used were the folic acid antagonists, aminopterin and methotrexate, as well as 6-aminonicotinic acid. Four of these patients, whose histories are briefly presented, remain clinically and radiologically free of tumour after periods of six to twenty-seven months following treatment. Although these are toxic drugs, there were no deaths in this series of eight cases, and only one severe reaction.

The authors feel that the potentialities of these chemotherapeutic agents should be further explored by employing them in the management of advanced inoperable genitourinary carcinoma when the more conventional forms of therapy have failed to control the tumour.

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PAGES OUT OF THE PAST: FROM THE JOURNAL OF FIFTY YEARS AGO

REPORTING CASES OF TUBERCULOSIS

The Medical Officer of Health of Toronto has issued notice to the profession that, in future, an old, dormant by-law, requiring that cases of tuberculosis be reported, shall now be put into force. As to the wisdom of such a course, there cannot be any doubt. It is in the interests of the community at large. It is only by having the fullest knowledge of all the cases of tuberculosis, as to their occupation, manner of living, environment, etc., that efficient steps can be taken to prevent the spread of the disease to others, and to aid those who are already affected.

The Health Department should be in possession of information as to the sanitary conditions of the houses occupied by tuberculosis patients, through the patients, where they are in attendance; if not, through an officer sent to inspect the premises. Simple, private directions should be given to the latter class as to the steps to be taken of the infected person, whether he or she is able to work, or is invalided. Further, when the room or house occupied by such persons becomes vacant, the Health Department should be charged with the duty of its prompt and thorough disinfection. Through such a well-informed Health Department the charitable workers could be so directed that their efforts would be fairly evenly distributed among all the needy.

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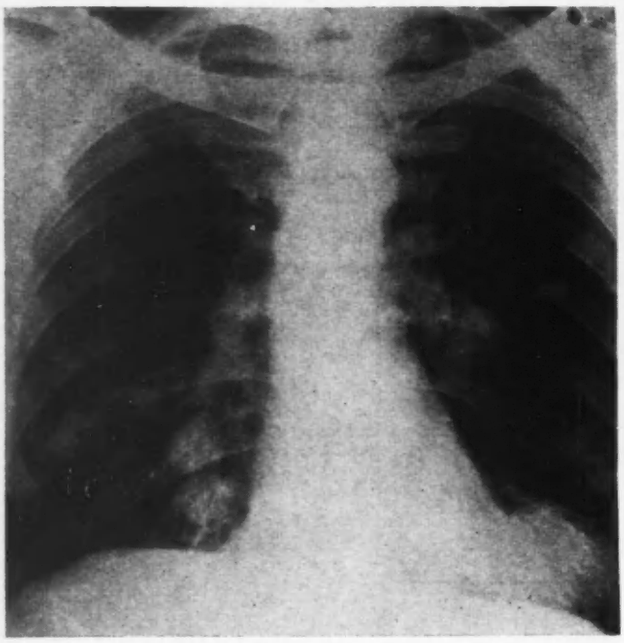
In carrying out such a scheme, good judgment will be necessary, so as to secure the co-operation of the public, especially of the poorer people, and they form the class chiefly concerned. The reporting should be private, so that no harm be done to the interests of those in the early stages, who, for various reasons, are still under the necessity of working. The object of reporting cases is not to curtail their liberties but to improve their conditions of living, to afford aid where possible, and thus to increase the usefulness of those affected and improve their chances of restoration to health.—Editorial, *Canadian Medical Association Journal*, 1: 158, February 1911.



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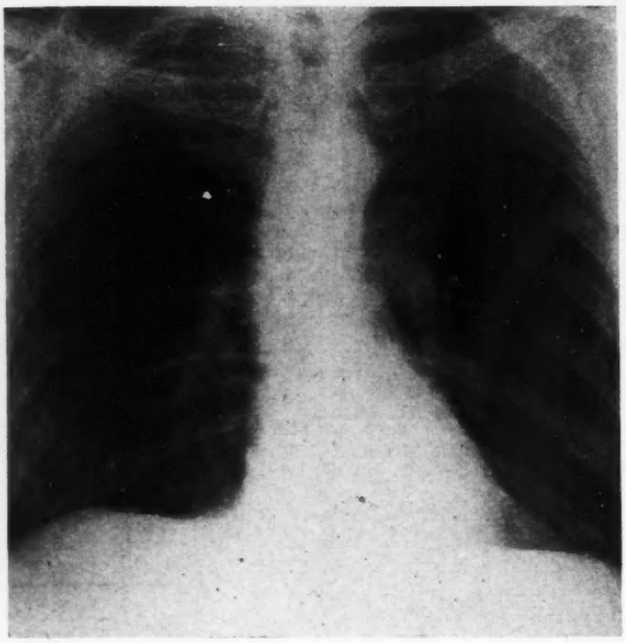

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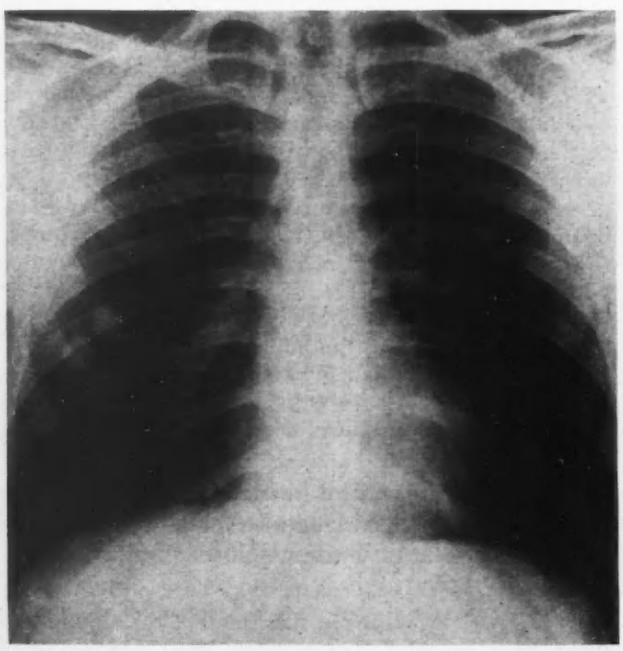

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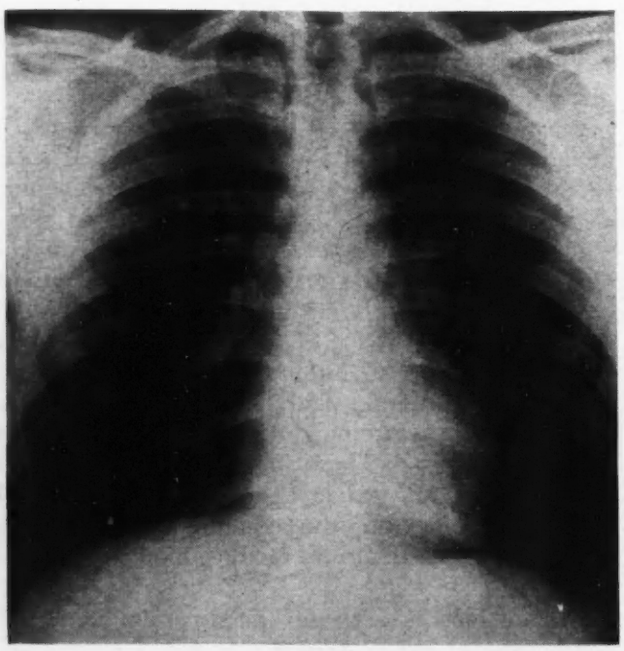

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KERATOACANTHOMA: INCIDENCE AND PROBLEMS IN DIAGNOSIS AND TREATMENT*

ROBERT JACKSON, M.D., F.R.C.P.[C]
and GEORGE S. WILLIAMSON, M.D.,
F.R.C.P.[C], *Ottawa, Ont.*

KERATOACANTHOMA is a skin tumour, usually occurring on the face and dorsum of the hands, which grows rapidly in 2-3 months to form a firm, 1-2 cm. nodule with a central keratin core. Clinically and histologically it may resemble a well-differentiated squamous cell carcinoma, but if left alone, it disappears without treatment, leaving a depressed scar. During the last ten years this subject has been extensively reviewed both clinically and histologically.[1-5] It is clear that some cases were previously diagnosed and treated as squamous cell carcinoma.

The purpose of this report is (1) to present the findings of a histological study of material at the Ottawa Civic Hospital and to compare the results with the incidence of keratoacanthoma reported from various geographical locations; (2) to attempt to explain the wide variations in the reported incidence of keratoacanthoma in relation to squamous cell carcinoma; and (3) to discuss briefly certain problems in diagnosis and treatment by means of illustrative cases.

METHODS AND MATERIALS

From the material in the Department of Pathology, Ottawa Civic Hospital, a histological review was carried out on all cases diagnosed as squamous cell carcinoma (keratinizing carcinoma) and carcinoma-in-situ of the skin from 1951 to 1955 inclusive. These specimens came from all services of the hospital and from some physicians in the surrounding countryside. Many biopsies were small and inadequate. These were excluded from this series. A histological diagnosis of keratoacanthoma was made on the presence of the following:

(a) An overall cup shape with a large central keratin core.

(b) Undercutting of the normal overlying epidermis by the hyperplastic squamous cells, forming a distinct shoulder at each side.

(c) Absence of true neoplasia in the epidermal cells. This is a difficult point to describe accurately. The lower border of some early hyperplastic lesions, if seen alone, would have to be called Grade I squamous cell carcinoma. A conservative attitude was maintained on the interpretation of this point. If any marked neoplasia was seen at the base, the tumour was classified as a squamous cell carcinoma. It is possible that some actively growing early keratoacanthomas were missed by doing this.

(d) A reactive cellular infiltrate of lymphocytes, histiocytes and polymorphonuclear leukocytes, with exocytosis. The frequency and extent of this process were impressive.

(e) An intact basal layer.

The premalignant lesion, senile keratosis (solar keratosis, verruca senilis), was not included with the squamous cell carcinomas unless frank carcinomatous change had occurred in its base. The problem of distinguishing between squamous cell carcinoma and pseudoepitheliomatous hyperplasia was encountered. On the above basis 9 keratoacanthomas and 355 squamous cell carcinomas were found.

INCIDENCE

Table I shows a wide variation in the reported incidence of keratoacanthoma in relation to squamous cell carcinoma. None of these reports were from tropical or high-sunshine areas. This discrepancy in the incidence warrants explanation. This problem has not been discussed elsewhere.

TABLE I.—COMPARATIVE INCIDENCE OF KERATOACANTHOMA

Source	*Location*	*Squamous cell*	*K.A.*	*% K.A.*
Beare[3]	Ireland	150	76	50
Thomson[2]	England	623	292	47
Veidenheimer and Fidler[5]	Vancouver	77	30	39
Linell and Mansson[1]	Sweden	533	99	17
de Moragas, Montgomery and McDonald[4]	Minnesota	427*	10	2
Present series	Ottawa	355	9	2

*Includes 388 Grade I squamous cell carcinomas and 39 pseudoepitheliomatous hyperplasias.

In the opinion of the authors the greatest difficulty is the histological definition of keratoacanthoma. Despite the so-called typical and characteristic features listed in many reports, the problem is neither black nor white. Veidenheimer and Fidler[5] state that the "incidence of keratoacanthoma is uncertain because of past and present confusion with low-grade carcinoma and possibly certain types of pseudoepitheliomatous hyperplasia". Bowman and Pinkus[6] state that the "histologic differentiation between keratoacanthoma and so-called self-healing squamous cell epithelioma of the skin may be difficult, if not impossible." Rook and Moffatt[7] say that "histological criteria for determination of the borderline between the benign and the malignant in cutaneous epitheliomata may require revision". The authors do not agree with de Moragas *et al.*,[4] who imply that only rarely is there any great difficulty in distinguishing between these two conditions histologically.

In addition to the general overall histological problem there are the factors of the site of the

*From the Department of Pathology, Ottawa Civic Hospital, and the Ottawa Clinic, Civic Hospital Division of the Ontario Cancer Foundation.

Presented at the Annual Meeting of the Canadian Dermatological Association, Banff, Alta., June 1960.

biopsy and the age of the lesion. There may be a great variation in a lesion from area to area (e.g. base and shoulder). Also, an early actively growing lesion shows more neoplasia, especially at its base, than an older shelled-out lesion. As Veidenheimer and Fidler[5] state: "The biopsy has certain diagnostic features but it too easily may be mistaken for squamous cell carcinoma."

It may be that keratoacanthoma is not a clinical entity, and that attempts are being made to establish an entity which does not exist.

The authors have not encountered the problem of keratoacanthoma developing into squamous cell carcinoma and agree entirely with Pillsbury and Beerman,[8] who state in summary: "In a majority of cases, the differentiation of benign keratoacanthoma from malignant squamous cell carcinoma can be made by careful consideration, jointly, of the clinical course of the tumour and its histopathologic characteristics [an adequate biopsy having been obtained—authors' insert]. There remains, however, a residuum of cases in which absolute and positive differentiation is impossible."

In view of the foregoing, it is not surprising that the incidence of keratoacanthoma in relation to squamous cell carcinoma varies greatly from report to report.

Criteria for Diagnosis of Keratoacanthoma

As a result of this study the authors conclude that while both the clinical and the histological diagnosis of keratoacanthoma may be suspected, neither is absolute. The following criteria should be established for the diagnosis of keratoacanthoma.

(1) *History*

The duration of a lesion is often difficult to estimate accurately, as memory is not too reliable in this respect. A 1-2 cm. nodule may develop in one month, unusual for squamous cell carcinoma. With the exception of large lesions (e.g. Case 2 below), the duration of keratoacanthoma rarely was more than two months.

(2) *Morphology*

The basic lesion is a nodule with a central core occupying about one-half of the total top diameter. The core may be small in early lesions and much larger in older lesions. This core consists of firmly packed keratin. The wall is smooth and slopes up to the top. There may be occasional telangiectatic blood vessels in this wall. The lesion sticks up above the skin level and there is no palpable spreading infiltration at the base. Thus the clinical features closely resemble the "button type" squamous cell carcinoma. Multiple lesions are rarely present. Even more unusual are mucosal lesions.

(3) *Adequate Bisected Biopsy*

A superficial wedge or punch biopsy is of little value. The base should be included. Total scalpel excision or removal of the entire lesion by cutting around its base with scissors are the two preferred methods of obtaining adequate biopsy material. The specimen should be bisected and the pathologist given the clinical history and the suspected diagnosis.

(4) *Histopathology* (see above).

(5) *Natural Course*

This is the ultimate test. Patients with multiple lesions may give a history of previous disappearance of lesions without treatment. Resolution usually occurs within a few months. Recurrences have been reported and do not necessarily indicate carcinoma.

Illustrative Cases Presenting Problems in Diagnosis and Form of Treatment

Case 1.—S.H., a 71-year-old man, had multiple keratotic 1-2 cm. nodules of two months' duration located on the scalp and lips. Some appeared to have a central keratin core (Figs. 1 and 2). Biopsy (Fig. 3) showed a squamous cell carcinoma, probably secondary. He died shortly after with generalized carcinomatosis from probable primary bronchogenic carcinoma.

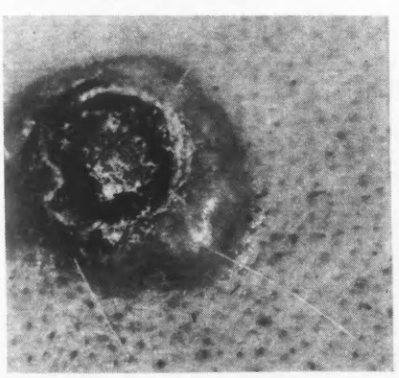

Fig. 1.—Case 1. Scalp tumour with central core.

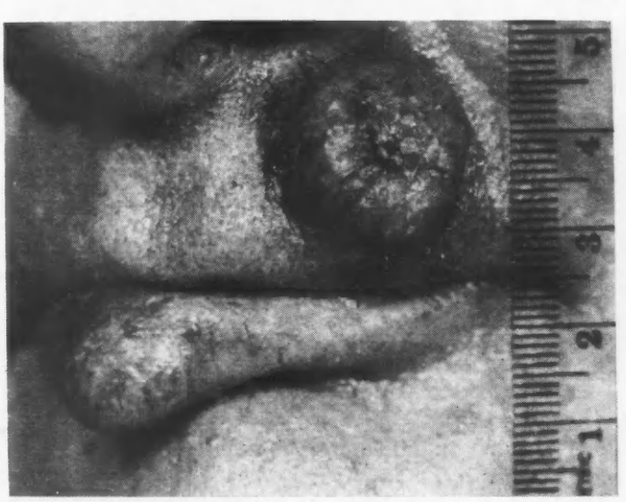

Fig. 2.—Case 1. Lip lesions with suggestion of central core on left upper lip nodule.

Comment.—Metastatic carcinoma resembling keratoacanthoma. A biopsy is necessary to establish the diagnosis in all cases.

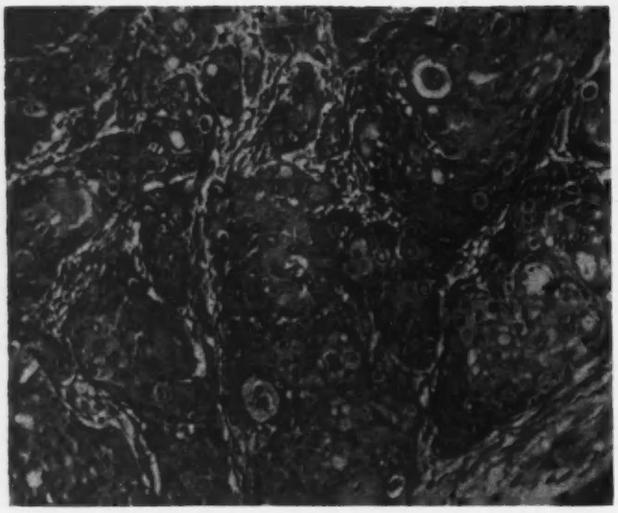

Fig. 3.—Case 1. Left upper lip lesion. The large bizarre nuclei and the loss of normal cell polarity are two of the most obvious features in the frank squamous cell carcinoma. (All sections are stained with hematoxylin and eosin.)

CASE 2.—H.T., a 72-year-old man, presented with a 4-cm. ulcerative nodular lesion on his left wrist of four to five months' duration (Fig. 4). Two biopsies (Figs.

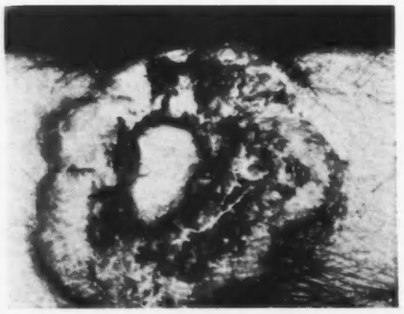

Fig. 4.—Case 2. Wrist. Note size. This is probably an old resolving lesion.

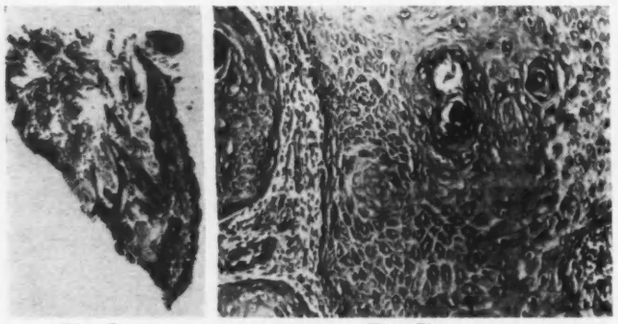

Fig. 5a. Fig. 5b.

Fig. 5a.—Case 2. Wedge biopsy showing shoulder with transition from normal to hyperplastic epidermis. Note large amount of central keratotic material. Fig. 5b.—Case 2. High-power of Fig. 5a, illustrating well-differentiated histological picture of hyperplastic non-carcinomatous squamous cells. Compare with Figs. 3 and 7.

5a and b) showed no evidence of carcinoma. The tumour was treated as carcinoma before a final retrospective diagnosis of keratoacanthoma was made.

Comment.—Keratoacanthoma simulating squamous cell carcinoma.

CASE 3.—J.J., a 48-year-old man, exhibited a 2-cm. nodule on the right side of the nose, of three months' duration (Fig. 6a). It was removed by desiccation and

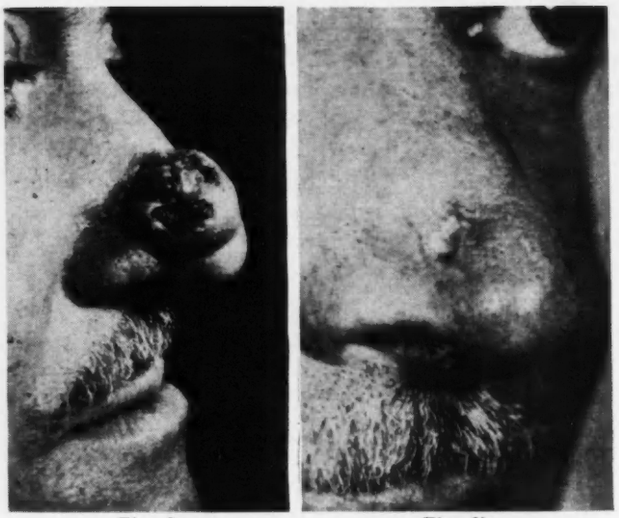

Fig. 6a. Fig. 6b.

Fig. 6a—Case 3. Note that core occupies almost all of the diameter of the top of the lesion. Lesion has the appearance of being stuck on. Fig. 6b.—Case 3. End result.

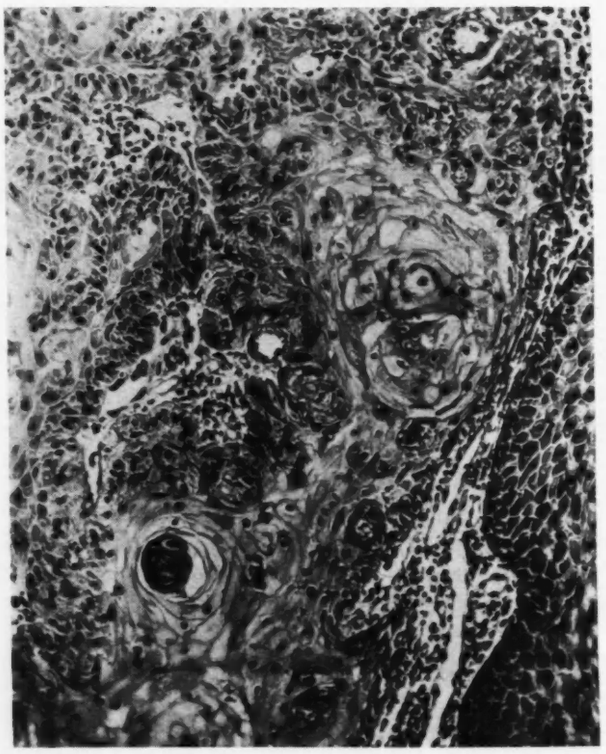

Fig. 7.—Case 3. Section from the base of an actively growing lesion might easily be mistaken for squamous cell carcinoma. Factors other than the microscopic findings should be taken into account.

curettage under local anesthesia. Biopsy (Fig. 7) showed findings compatible with a diagnosis of keratoacanthoma. The lesion recurred, and was subsequently treated by 1500 r (150 r x 10 doses) with an excellent result (Fig. 6b).

Comment.—Recurrent keratoacanthoma responding to low dose radiotherapy.

CASE 4.—D.G., a 12-year-old girl, was first seen April 21, 1960 (Fig. 8a). Because of possible scarring it was decided not to treat this lesion. When last seen on June 10, 1960, the lesion was smaller and flatter. It appeared to be resolving spontaneously (Fig. 8b).

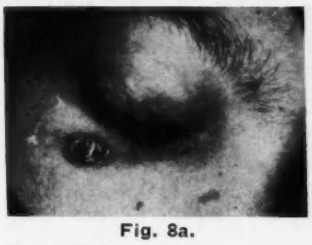

Fig. 8a.

Fig. 8b.

Fig. 8a.—Case 4. April 20, 1960. Fig. 8b.—Case 4. June 10, 1960.

TREATMENT OF KERATOACANTHOMA

Non-interference is usually neither desirable nor practical for the following reasons: (1) Most patients request the removal of unsightly tumours, particularly if located on the face. (2) Almost all lesions should be biopsied. In patients in whom multiple tumours are present and the diagnosis has been established, non-facial tumours may be allowed to resolve spontaneously.

Excision is good treatment, but if the lesion is large it may be difficult and may require grafting.

Electrodesiccation and curettage under local anesthesia after scissors or scalpel biopsy of the whole lesion is an eminently practical procedure. It is usually curative, and an adequate biopsy is obtained.

Radiotherapy is useful for very large lesions. The maximum dose required is approximately 1500 r; this is not a cancericidal dose. An adequate biopsy should be obtained first.

SUMMARY AND CONCLUSIONS

On the basis of this retrospective histological study, the incidence of keratoacanthoma was found to be 2% of the incidence of squamous cell carcinoma in the Ottawa area. Previously reported figures have varied from 2% to 50% in reasonably detailed reports from many parts of the world. We have been unable to find any discussion or explanation of this discrepancy.

One of the reasons (and perhaps the principal one) for this discrepancy is that the histological criteria for the diagnosis of keratoacanthoma are not definitive. Even with a suggestive history and clinical findings, and an adequate biopsy, the diagnosis may be difficult; with anything less, it may be impossible. Keratoacanthoma may very well be a type of pseudoepithelomatous hyperplasia due to many causes, such as x-ray, tar, ultraviolet light, trauma and infection. Perhaps attempts are being made to establish a clinical entity which does not exist. It is difficult to define clearly just what is a keratoacanthoma. The nebulous nature of this tumour is one of the reasons for the striking difference in its reported incidence. In any event, keratoacanthoma in the Ottawa area is considerably less than one-third or one-half as common as squamous cell carcinoma.

The criteria for making a diagnosis of keratoacanthoma have been presented briefly. In the light of the aforementioned findings, it is imperative that these criteria be strictly adhered to. Illustrative problem cases have been presented. Treatment should be individualized according to the location, age and size of the lesion. Radiotherapy, electrodesiccation and curettage, scalpel excision and spontaneous resolution may at one time or another be indicated.

The last word on keratoacanthoma has not been written. Perhaps, as Rook and Moffatt have suggested, some revision in the histological criteria of the borderline between benign and malignant squamous acanthomas is indicated. It could well be that too much is being asked of the microscope.

Photographs and photomicrographs were prepared by Mr. M. Smith of the Department of Photography, Ottawa Civic Hospital.

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PAGES OUT OF THE PAST: FROM THE JOURNAL OF FIFTY YEARS AGO

The fifth International Congress for Obstetrics and Gynaecology was held at St. Petersburg, September 22 to 28, 1910. The reports of the prevalence of cholera—fortunately much overdrawn—materially affected the zeal of the 750 members who promised to attend, and only 350 put in an appearance, an unfortunate fact in view of the extensive preparations that had been made for their reception by the St. Petersburg profession. Professor von Ott, who has the fortune to be director of possibly the richest clinic in Europe—possessing an annual income of $200,000 for 160 beds—had made the arrangements for the entertainment of the visitors, among whom were, as representing England and America, Dr. Routh of London and Dr. Davis of Philadelphia.

There were four chief topics for consideration: (1) the treatment of inoperable carcinoma; (2) Caesarean section, with reference to suprasymphyseal section and pubiotomy; (3) the vaginal route for gynaecological operation, and (4) operative treatment of uterine displacements.

Mangiagalli of Milan opened the discussion on the question of carcinoma, laying down as postulates that treatment should be directed to prevent proliferation, promote necrosis, and provoke reabsorption of the tumour. He divided such treatment into (a) by drugs—mercury, quinine, arsenic; (b) by extracts of internal organs—thyroid, etc.; (c) by ferments, trypsin, amylopsin, and organic extracts, as nuclein, neurin, and pancreatin; (d) by bacteria, Coley's method with prodigiosus toxines; (e) by vaccines, such as Doyen's serum; (f) by physical methods, x-rays, radium, fulguration. In his experience none of these methods were of much value.—Retrospect of Medicine, *Canadian Medical Association Journal*, 1: 181, February 1911.

Canad. M. A. J.
Feb. 11, 1961, vol. 84

GLOBUS HYSTERICUS: A FOLLOW-UP STUDY

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THE SYMPTOM, "a lump in the throat", is common and can in some respects be compared with the symptom, dizziness. One would not think of making the diagnosis of Ménière's syndrome in every patient who complained of dizziness any more than one would make the diagnosis of globus hystericus in every patient who complained of a lump in the throat.

It is a well-known paradox that most pathological lesions in this area, be they epiglottic cysts or benign or malignant neoplasms, do not ordinarily present as a lump in the throat. The fact that these lesions occasionally present as a lump, should keep us ever on the alert and instil a healthy respect for this symptom.

It is the opinion of many,[1-5] including this author, that the symptom complex known as globus hystericus is primarily a manifestation of some emotional disturbance. It may, however, be initiated by a large variety of pathological changes which are often evanescent and usually mild. Weiss and English[6] have pointed out that the diagnosis of a functional illness should not be made simply by excluding organic disease, but on its own characteristics as well.

DEFINITION

A typical case of globus hystericus could be described as follows: The patient is usually a female (2 to 1 in this series). She is about 40 years of age, tense and unduly concerned about "a lump" she has had in her throat for several months (average 6.3 months). The patient is usually not able to localize the lump too accurately, and often it changes slightly from time to time. She states that the lump is not always there; however, when present, she is constantly trying to swallow or cough it up. It is worse when she is tired and most noticeable while she is swallowing saliva. It does not bother her too much at meal time; in fact, the sensation often disappears while eating. The patient is usually in good health and has not lost any weight. Very frequently, these patients admit that they have been associated in some way with a person who has or had a malignant tumour.

A thorough examination of the ears, nose and throat, including an examination of the neck and a bimanual palpation of the mouth, fails to reveal any significant abnormality.

A smaller number of patients are seen whose symptoms differ in one or two minor respects from the typical description and these have been termed cases of atypical globus hystericus.

MATERIAL AND METHOD

The patients selected for this study consisted of all the patients diagnosed by the author as having globus hystericus (typical and atypical) over a six-year period. On each of these patients a follow-up of at least 12 months was possible. This study was undertaken first to determine the fate of the patient's symptoms in an effort to evaluate the method of managing these patients. The second and more important reason for the study was to find out if any gross errors in diagnosis had been made.

No attempt was made to include all of the patients complaining of a lump in the throat who were seen by the author. There were a few who had obvious organic causes, which by definition excluded them from this study. The number was not impressive.

There were 207 patients contacted out of a total of 220. The following five methods were used in contacting these patients, listed in order of preference:

1. Examination of the referring physician's records by the author (49 patients were followed up in this way).
2. Questionnaire answered by the referring physician.
3. Telephone conversation with the referring physician.
4. Questionnaire answered by the patient.
5. Telephone conversation with the patient.

The nature of this illness made it preferable to obtain the information by indirect methods whenever possible. A few of the patients who had to be contacted directly are known to have had a flare-up of symptoms as a result of the letters and telephone calls. It is hoped that these were the only ones.

FINDINGS

The accompanying tables and figures summarize the findings of this study. Table I indicates that there were more than twice as many women as men, and that about three-fourths of the patients were considered to be "typical". In 29 patients the symptoms had been present over 24 months, for the remainder the average was 6.3 months. This is shown graphically in Fig. 1. In Table II the number followed up and the percentages in each group are given, and Fig. 2 illustrates the percentages of patients followed up for a varying number of months up to 84, or seven years. By definition 100% were followed up for 12 months; the average length of follow-up was 34 months.

TABLE I.—SEX INCIDENCE

Type	*Male*	*Female*	*Total*
Typical	48	115	163
Atypical	21	36	57
Total	69	151	220

The age distribution of the total group of 220 patients is shown in Table III.

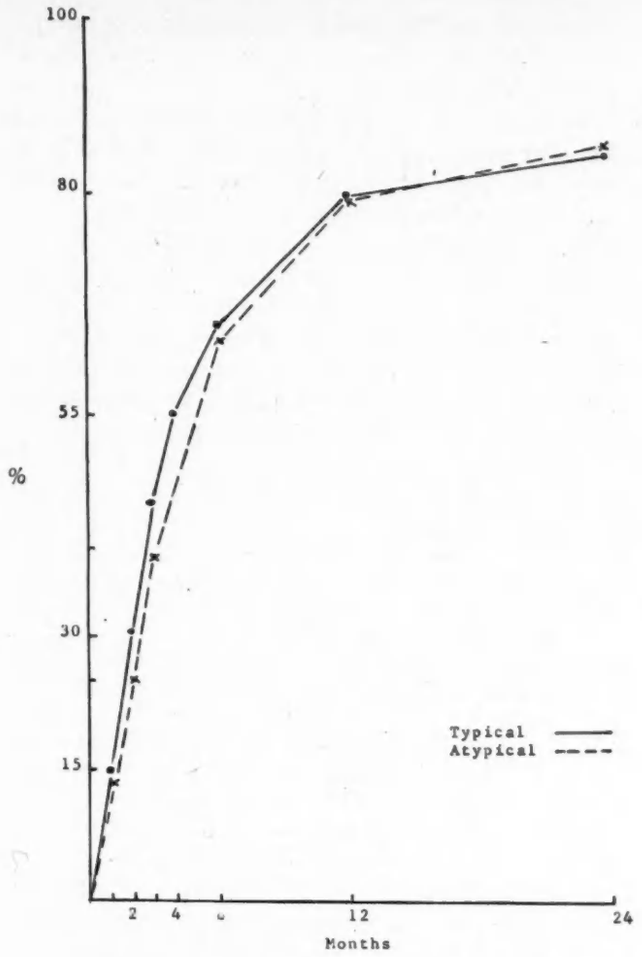

Fig. 1.—Duration of symptoms before consultation.

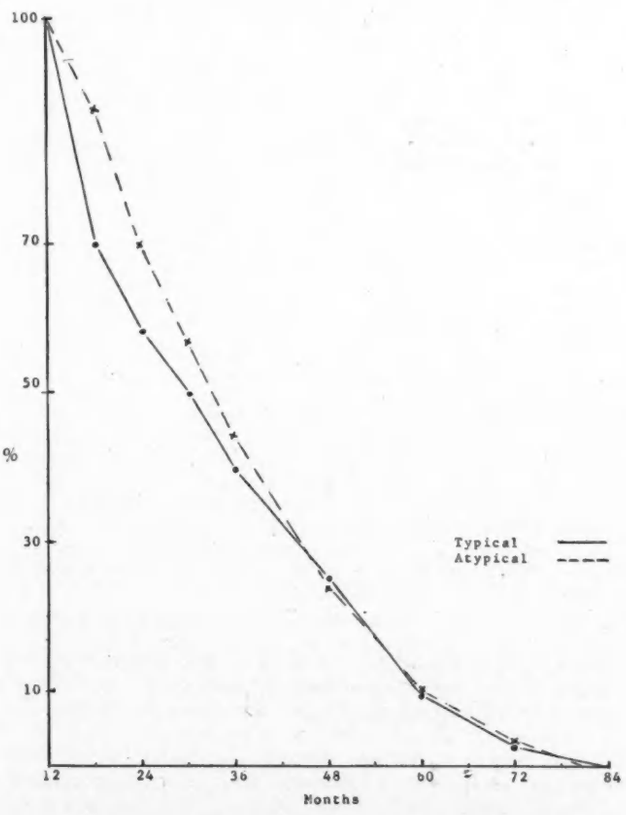

Fig. 2.—Length of follow-up in months.

TABLE II.—PERCENTAGE OF PATIENTS FOLLOWED UP

Type	*Total*	*Number followed up for more than 12 months*	*Percentage*
Typical	163	154	95
Atypical	57	53	93
Total	220	207	94

TABLE III.—AGE DISTRIBUTION OF TOTAL SERIES

Age group	*No. of cases*	*Age group*	*No. of cases*
21-25 years	5	46-50 years	26
26-30 years	21	51-55 years	24
31-50 years	30	56-60 years	18
36-40 years	34	60-65 years	8
41-45 years	43		

There were only five deaths in this series, and all were from unrelated causes (Table IV). It is interesting that four of these patients were 70 years of age or over, and in the total series there were only six patients 70 years of age or over.

TABLE IV.—DEATHS IN TOTAL SERIES

Number	*Sex*	*Age*	*Cause of death*
2	F	83	Cerebrovascular accident
	F	74	" "
1	F	60	Carcinoma of the bladder
1	M	75	Myocardial infarction
1	F	70	Diabetes, hypertension

Of the 13 patients who have not been contacted, two were followed up for about ten months, and one is known to be alive and pursuing his occupation as a commercial fisherman. Of the remaining ten, five had had their symptoms for more than a year before their examination. This leaves five unaccounted for; two are known to have moved away, and one has remarried and her name is not known. No information can be obtained regarding the remaining two patients.

TREATMENT

Every effort was made to give these patients a definite opinion as soon as possible. If radiographic studies or endoscopic procedures were believed to be necessary, they were performed as soon as possible. The practice of having the patient return for repeat follow-up examination on a basis of "wait and see what happens" was avoided.

The patient was told that no serious lesion was present in her throat and no indefinite terms were used. A logical explanation for the presence of symptoms in the absence of findings was then given. By allowing the patient to discuss her problems by showing an interest in them, it was often possible to bring out the most probable cause of the symptoms.

A few patients were referred to an internist. Further reassurance and perhaps a mild sedative were recommended to the referring physician. None of these patients were referred to a psychiatrist, although it would be interesting to do this

if one had the facilities recently outlined by Barton[7] in a report on hysterical dysphonia.

RESULTS

The most important result is that 207 patients have been followed up and 202 are alive one or more years after being first seen. None of the five deaths were connected with the throat symptoms. No new symptoms were reported to indicate the presence of a latent disease to explain the original complaint.

TABLE V.—PRESENT STATUS OF PATIENTS IN REGARD TO SYMPTOMS

	Typical		*Atypical*		*Total*	
	No.	%	No.	%	No.	%
Not complaining of original symptoms	121	75	38	67	159	72
Symptoms come and go	17	10.5	7	12	24	11
Unchanged	16	10	8	14	24	11
Patients not followed up	9	4.5	4	7	13	6
Total	163	100	57	100	220	100

The present status of the patients in regard to symptoms is tabulated in Table V and needs no further elaboration. In the group of 183 patients whose symptoms were either absent or improved, many admitted that improvement began as soon as they realized that there was nothing seriously wrong. Most of those whose symptoms come and go state that the symptoms usually reappear during periods of stress. There were also some rather unusual explanations: one woman stated that her symptoms disappeared when she stopped eating onions; a man believed that his trouble was due to using gasoline in his cigarette lighter, and another felt that the lump came from drinking some bad water.

CONCLUSIONS

Some of the confusion in the literature on this subject seems to be due to the fact that many of the articles are written about the symptom "a lump in the throat" and others about the symptom complex "globus hystericus".[8-10]

There are many pathological conditions about the pharynx that may initiate this symptom complex, but there would appear to be an emotional factor present to perpetuate the symptoms.

The symptom complex is commoner in women, and the average age of the patient is nearer 40 than 50 years.

The examination and investigation of these patients should be carried out as quickly as possible so that a firm stand can be taken to convince the patient that no serious disease is present.

The great majority of these patients (nearly 90%) appear to respond to reassurance and superficial psychotherapy.

SUMMARY

Ninety-five per cent of all patients diagnosed as having globus hystericus and seen by the author during a six-year period were followed up for at least one year. No gross errors in diagnosis were evident from this survey. The method used in managing these patients has been outlined and the results obtained have been tabulated.

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PAGES OUT OF THE PAST: FROM THE JOURNAL OF FIFTY YEARS AGO

TORONTO ACADEMY OF MEDICINE

A meeting of the Academy of Medicine was held in the biological department of the University of Toronto, January 3, 1911, the president, Dr. Albert A. Macdonald, being in the chair. Dr. J. F. W. Ross, one of the trustees, explained briefly to the meeting that the new home of the Academy would probably be ready for occupancy about the middle of February, when it was proposed to hold a conversazione to mark the occasion.

The paper of the evening was read by Dr. George E. Armstrong of Montreal, and was on "The Surgical Treatment of Diseases of the Stomach". Dr. J. F. W. Ross opened the discussion. He was followed by Dr. W. W. Jones. Dr. A. McPhedran, who next discussed the paper, pointed out that hemorrhage at the base of a gastric ulcer was most amenable to treatment. In his experience few cases of hemorrhage from the stomach required operation. He believed that in certain cases it was necessary to open the stomach and find the bleeding point, and deal with it in the way suggested by Dr. Armstrong. He wished to know when a gastro-enterostomy should be done. He thought that perhaps more favourable results might be obtained, in cases requiring operation, if the opening were made in the antrum of the stomach.

Dr. H. A. Bruce questioned the wisdom of a gastro-enterostomy in all cases of gastric hemorrhage where surgical interference was indicated. He believed that in small, frequently repeated hemorrhages, gastro-enterostomy was of value, as indicated by Dr. Armstrong, and agreed that ligation or excision was best as a routine procedure. X-ray shadowgraphs, in various stomach conditions, would probably be useful, or a bismuth meal and cinematograph pictures following.—*Canadian Medical Association Journal*, 1: 194, February 1911.

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SENDAI VIRUS ANTIBODIES IN THE ARCTIC*

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AN APPARENTLY new virus was isolated in 1952 from an outbreak of pneumonitis in a newborn nursery in the city of Sendai, Japan; 11 of 17 affected infants died.[1] Administration of the virus to a healthy eight-year-old child induced a mild respiratory infection. The virus was recovered from the child's throat, and specific antibodies developed during the course of her illness. An identical virus was isolated in Russia in 1957 from patients with an influenza-like illness.[2] A preliminary survey carried out in 1952 in Japan showed a very patchy distribution of Sendai virus antibodies.[1] Several serological surveys in other countries have shown antibodies to have a widespread geographical distribution.[3-7] Jensen, Minuse and Ackermann[3] found the antibody incidence to be 40% in a total of 459 persons in the United States, the highest incidence being in the age group 10-18 years.

DeMeio and Walker,[8] in 1957, reported that of 24 patients with an increase in antibody titre to mumps virus during the course of clinical mumps, 22 also showed an increase in antibody titre to Sendai virus. These authors suggested that the surveys reporting Sendai virus antibodies might indicate only the prevalence of mumps.

Several recent papers have dealt with the antigenic relations of the Sendai virus to other myxoviruses. McKinney, England and Froede[9] reported that the Sendai virus was related to the Hemadsorption 1 virus. A number of workers have reported the Sendai virus to be closely related, and possibly identical to the Hemadsorption 2 virus,[10-13] and a classification of the para-influenza viruses on this basis has been proposed.[13] Zahdanov and Bukrinskaya[14] doubt that the Sendai virus is more closely related to the Hemadsorption 2 virus than to the other myxoviruses; they have been able to show numerous minor relationships between all viruses in the group except for Influenza A, B and C, which seem to be antigenically distinct.

It seems from these reports that the significance of Sendai virus antibodies in human populations is not established. Therefore, as part of a study on the general incidence of viral antibodies in the Arctic,[15-17] sera collected in Canadian Arctic communities were also examined for Sendai virus antibodies. The present report deals with these results and the relationship between Sendai and mumps antibodies in these communities, as well as the results of studies on acute mumps and acute respiratory disease in Winnipeg children.

*From the Department of Bacteriology and Immunology, and the Defence Research Board Arctic Medical Research Unit, Department of Physiology, University of Manitoba, with the aid of Public Health and Defence Research Board grants.

PROCEDURE

Blood was collected from healthy inhabitants of five Eskimo communities and one Arctic Indian community in the course of annual routine health examinations and also from Eskimos not suffering from acute disease in two sanatoria (Tables I and II). The subjects from whom blood was taken were selected at random from these populations. Although they were mainly adults of both sexes, in one community most of the children over four years of age were also examined. The proportion of the various populations sampled varied between 15% and 70%. The sera were separated at the collection site, frozen and shipped by air to the laboratory in Winnipeg. Paired sera were also collected in Winnipeg from two groups of children with acute disease; the first had classical mumps, the second, acute respiratory disease. Acute and convalescent sera were collected from each patient with an interval of two to three weeks between samples.

The antigens used in the study were prepared from viruses maintained in this laboratory. The Sendai virus was originally obtained in 1957,* and maintained by repeated passage in egg allantoic sacs. Antigen used for complement fixation was prepared from allantoic membrane and fluid, and contained viral and soluble constituents. The mumps virus was obtained† in 1957, and was maintained by repeated passage in the amniotic sac of eggs. Antigen used for complement fixation was a mixed viral and soluble preparation of amniotic membrane and fluid. All sera were tested with the complement fixation test using the perspex plate method.[18, 19]

RESULTS

Arctic Communities

The results of complement fixation tests are presented in Tables I-IV and in Figs. 1 and 2. In the tables where titres are not given, a titre of one in four or over is considered significant.

TABLE I.—SENDAI ANTIBODIES IN MUMPS-FREE COMMUNITIES

Community	*No. of samples*	*Incidence of Sendai antibodies*	
		No.	*%*
Cambridge Bay	54	41	76
Garry Lake	21	9	43

Table I shows the results in two communities in which no antibodies to mumps virus were found, while both communities had a relatively high incidence of antibodies to Sendai virus. The finding in these two communities indicates that Sendai

*Obtained from Dr. K. E. Jensen of the Communicable Disease Center, Montgomery, Alabama, U.S.A.
†Obtained from Dr. F. Nagler of the Federal Virus Laboratory, Ottawa.

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antibodies occur independently of mumps antibodies in the Arctic. Encountering a community without antibodies to mumps must be a rare occurrence in civilized areas and therefore demonstrates that working with isolated Arctic populations has a distinct advantage.

Table II shows the results obtained in five communities in which antibodies were present to both Sendai and mumps viruses. The incidence of antibodies to the Sendai virus was greater than in most civilized communities, varying from 50% to 95%, the greatest incidence being at Frobisher Bay. The incidence of the antibodies to mumps virus compares with the incidence in civilized communities, and varied from 55% to 80%; the area with the highest incidence was again Frobisher Bay. The overall incidence of antibodies to the Sendai virus and to the mumps virus was roughly equal as shown in the last horizontal row of figures; this suggests that the two antibodies were related.

TABLE II.—COMMUNITIES WITH BOTH SENDAI AND MUMPS ANTIBODIES

Community	*No. of samples*	*No. with antibodies to Sendai only*	*Mumps only*	*Sendai and mumps*
Central Arctic...	75	13 (17.3%)	20 (26.7%)	24 (32.0%)
Old Crow.....	107	7 (6.5%)	26 (24.3%)	47 (44.9%)
Frobisher Bay...	59	11 (18.6%)	1 (1.7%)	47 (78.0%)
Hamilton San....	141	42 (29.8%)	21 (14.9%)	63 (44.7%)
Camsell Hospital	27	8 (29.6%)	4 (14.8%)	11 (40.7%)
Total.....	409	81 (19.8%)	72 (17.6%)	191 (46.7%)

The individual communities, however, showed a great variation in the incidence of these antibodies, and analysis of these data fails to show any interdependence between the Sendai and the mumps antibodies.

Fig. 1 shows the quantitative distribution of both Sendai and mumps antibodies in the five communities in which both occurred. If the two viruses are antigenically related, exposure to one might be expected to boost the level of antibodies to the other. Inspection of the figure does not suggest that either boosted the antibody level to the other, and this was confirmed by statistical analysis. The distribution of Sendai antibody titres in the cases with Sendai antibodies, but without mumps antibodies, was compared with the distribution of Sendai antibody titres in the cases having both mumps and Sendai antibodies by the χ^2 method. The groups were not significantly different. Similarly, the influence of Sendai antibodies on the titre of mumps was tested and found not to be significant.

Failure to show this booster effect of Sendai virus on mumps antibodies, or vice versa, favours the independent occurrence of these two types of antibody.

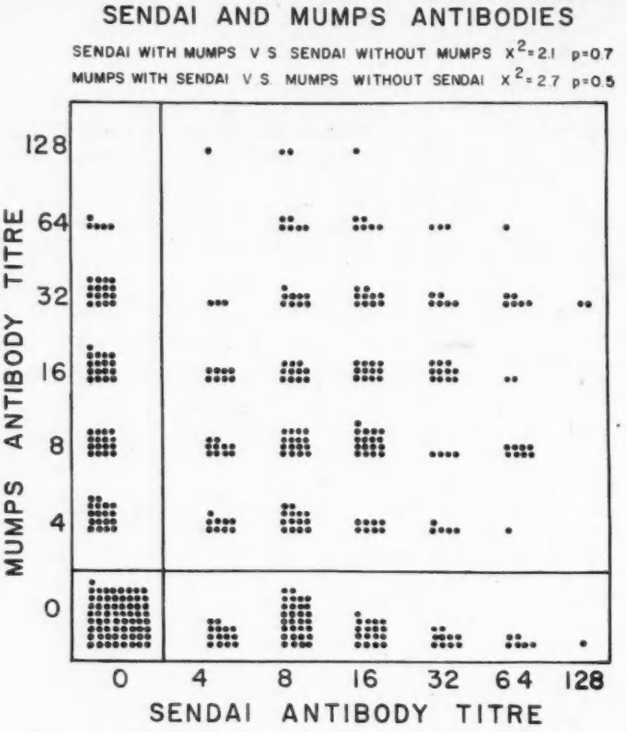

Fig. 1.—Distribution of mumps and Sendai antibody titres in sera from five communities in which both antibodies occurred.

Fig. 2 gives the age distribution of antibodies to the Sendai and mumps viruses. Antibodies to the Sendai virus are significantly less frequent in the 0-10 year age-group than in the 10 year and over age-group. They are also significantly less frequent than mumps in this same age group. These findings also favour the independent distribution of the two antibodies.

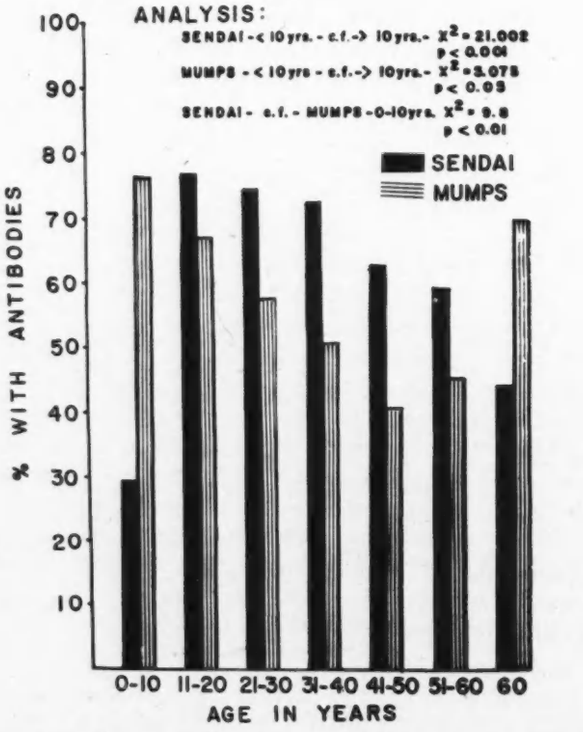

Fig. 2.—The distribution of mumps and Sendai antibodies by age groups.

Acute Disease—Winnipeg Children

Table III shows the results obtained by complement fixation tests on paired sera from the acute and convalescent phase of mumps in Winnipeg children. Five of 14 had significant increases in antibody titre to both viruses. Four patients who did not have an increase had a high titre of antibody to mumps in both the acute and convalescent

TABLE III.—PAIRED SERA FROM CHILDREN WITH CLINICAL MUMPS

Case	*Mumps titre*		*Sendai titre*	
	1st serum	*2nd serum*	*1st serum*	*2nd serum*
1	8	64	8	128
2	16	128	8	64
3	4	64	8	32
4	16	128	0	16
5	4	16	4	16
6	0	128	8	8
7	8	64	8	16
8	16	64	4	4
9	4	16	4	8
10	8	16	32	64
11	128	128	128	128
12	64	64	16	64
13	32	32	16	16
14	32	32	0	0

sera; three of these four also had a high titre of antibody in both sera to the Sendai virus. Six additional high-titre mumps sera were examined, and three of the six had a high titre of antibodies to the Sendai virus. This suggests that the mumps virus produced antibodies which react with the Sendai virus. Table IV is an attempt to show a

TABLE IV.—PAIRED SERA FROM CHILDREN WITH ACUTE RESPIRATORY DISEASE

Case	*Mumps titre*		*Sendai titre*	
	1st serum	*2nd serum*	*1st serum*	*2nd serum*
1	4	64	0	0
2	0	16	4	4
3	16	32	4	4
4	32	32	4	4
5	64	64	0	0
6	8	8	0	0
7	4	4	0	0
8	0	0	4	64
9	0	0	4	64
10	0	0	64	32
11	4	4	8	8
12	4	4	8	8
13	0	0	4	4
14	0	0	4	4
15 - 64	0	0	0	0

similar cross-reaction due to the Sendai virus in acute respiratory disease. Unfortunately the number of patients with antibodies to the viruses under consideration is small, and therefore the absence of cross-reactions is difficult to assess.

DISCUSSION

The primary objective of this study was to determine the incidence and significance of antibodies to the Sendai virus. In the literature, the relationship between the myxoviruses seems to differ in different species. The results also depend on the test used. Generally the complement fixation test, particularly with soluble or mixed viral and soluble antigen, shows more extensive cross-reactions than do the hemagglutination inhibition or virus neutralizing tests. Cross-reactions within the myxovirus group complicate the interpretation of antibodies to the Sendai virus. From the practical viewpoint it would seem that the important cross-reaction is with the mumps virus, since mumps occurs commonly.

The present study indicates that cross-reactions occur between Sendai and mumps viruses as demonstrated in the group of Winnipeg children with mumps. Such cross-reactions must be taken into account in the interpretation of the results of diagnostic and survey studies. However, evidence has also been brought forward in the present paper to indicate that the Sendai virus antibodies are distributed independently of mumps antibodies in the Arctic. This evidence includes the age and quantitative distribution of antibodies, as well as the finding of two communities in which there were no antibodies to mumps but a fairly high incidence of antibodies to the Sendai virus.

At the present time we do not know the significance of these antibodies in terms of disease among the Eskimo. This can only be resolved by the study of acute cases.

SUMMARY

Antibodies to Sendai virus exist in all the Arctic communities examined. There was no apparent relationship between the presence of Sendai antibodies and the presence of mumps antibodies in these communities. An antigenic relationship between these viruses, which has been proposed by others, is supported by data from cases of acute mumps in Winnipeg. The medical significance of these antibodies is not known.

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MEDICAL ECONOMICS

CANADIAN LABOUR'S APPROACH TO PROVIDING COMPREHENSIVE HEALTH SERVICES THROUGH ORGANIZED HEALTH CENTRES*

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GROUP INSURANCE plans associated with employer-employee relations have a fairly long history, but it is only in the last 15 years or so that negotiated group insurance plans have become a common aspect of collective bargaining. Before that, welfare plans usually were either unilaterally introduced by employers, sometimes as an attempt to avoid collective bargaining by keeping unions out, or resulted from the organization of mutual benefit societies among the workers themselves.

More recently we have witnessed an extremely rapid development in collective bargaining on group insurance and other employee benefits such as pensions and supplemental unemployment benefits. Many reasons have been suggested for these developments: wage and price freezes during the war, the excess profits tax and perhaps other probably equally valid but partial explanations. In my view, however, the greatest impetus came from the universal desire of workers for greater economic and social security. Thus the workers fought to receive part of their compensation for the efforts expended in the mill, mine or shop in the form of health insurance, pensions and other security measures.

The extent to which this trend has been established is reflected in the statistics published by the Economics and Research Branch of the Department of Labour in Ottawa. By 1958, almost 90% of the workers in this country were protected by health and welfare plans which had resulted from contracts between workers and their employers.

A more recent survey among Steelworkers' local unions revealed that group insurance plans were in effect in bargaining units covering over 95% of the non-office employees in those units.

But unfortunately our survey disclosed, as we are sure would be shown by an analysis of the plans recorded in the statistics of the Department of Labour, that the number of persons covered is not in itself a measure of the effectiveness or value of the protection actually provided by these plans.

Our investigation into the field of health care has disclosed a number of very serious and disturbing problems. Very briefly, these can be summarized as follows, but not necessarily in their order of importance:

First, although the benefits contained in our plans represented almost every possible combination and variety of hospital, surgical and medical benefit that the mind of an insurance company actuary was capable of conceiving, nevertheless not one of our existing plans provided anywhere near adequate protection against the financial hazards of illness and disability. We have found all of our existing plans to be inadequate in terms of the extent of coverage; that is, they exclude too many needed services. And we have found that they do not adequately meet the charges rendered; that is, they do not pay the full costs of even the restricted services provided under the plans.

At present we are conducting extensive surveys of the health needs and present health protection of our members and their families. Part of these studies involves the measurement of the effectiveness of our presently negotiated plans and particularly the relative value of the different types of plans in effect. The results of these studies should be available within the next 12 to 15 months and it is certain that they will be widely circulated.

In the meantime and in anticipation of the results to be derived from our surveys, we have made some rough estimates, based on reviews of some of the larger plans, of the percentage of family health costs paid by our existing plans. We estimate that at the present time our plans are meeting only between 20 and 45%, on the average, of current health costs, and we believe the 45% to be a very liberal upper-level estimate.

Thus our first complaint is in terms of the quantitative inadequacies of our presently existing group insurance programs. Too much of the risk of illness or disability is left upon the shoulders of the unfortunate individuals who incur serious sickness. Too much of the cost is left uninsured and paid directly out of the pockets of individual workers.

The second problem which must be faced is that of the cost of services under the plan, those not covered by the plan as well as the cost of the plan itself. Surely no one interested in the health of the people can be unaware of or indifferent to the tremendous increase in the costs of health care. The consumer price index shows that while the total cost of health care has increased by some 58% since 1949 (better than double the increase of approximately 27% in the total consumer price index) the cost of prepaid health care has increased by some 72%. Moreover, in a recent study presented to last year's Canadian Public Health Association meetings, it was estimated that between 1953 and 1957 the increase in per capita health expenditures was close to 10% per year.

It would appear from the statistics that the trend is continuing if not accelerating. Obviously this is

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a matter about which we cannot afford to remain indifferent.

A third problem area which requires attention is the lack of organization and co-ordination in existing health care programs. Not only is there no unity of purpose and direction in the overall structure of the programs, but the disjointed elements presently brought together bear a relationship to each other and to the total health needs of the membership only to the extent that the various features have been incorporated into the same insurance policy. Moreover, the lack of a co-ordinated health care plan is also apparent in the fact that health protection is often suddenly removed from our people during periods of lay-off, work stoppage, changing jobs or, perhaps most seriously, on their retirement from active employment. Thus even the very limited promise of security against the financial hazards of illness is suddenly removed from many workers just when the need may be greatest.

The fourth problem is one which I believe should receive particularly urgent attention. Our present plans scarcely touch on the important areas of preventive medicine and health education. If anything, our plans have built-in protection *against* the application of preventive medicine by requiring as a condition of securing benefits or reimbursement that the patient have a symptom of illness. Routine physical examinations and periodic check-ups are usually discouraged by their specific exclusion from the benefits of the plan. Rather than providing an inducement to early diagnosis and treatment, most plans provide a disincentive, particularly those plans which require a substantial "deductible" payment before any benefits under the plan become available.

As for health education, this seems to be a subject which has never even occurred to those who devise commercial health insurance plans, or perhaps it has been avoided because no one could figure an actuarial method of determining a premium rate for this feature.

The conclusion is inescapable. Our present group insurance plans are misnamed; they are not health insurance plans at all, but rather sickness insurance plans.

The fifth problem I shall mention is the lack of quality control and supervision exercised over services provided through the plan. Private insurance plans are purely profit ventures and show no interest whatsoever in either achieving or maintaining quality. The so-called non-profit service type plans, while professing an interest in the quality of services rendered, have never attempted to develop standards or enforce them. Even in the few cases I know where a physician has been asked to explain a procedure or why it was undertaken (the questioning, I hasten to add, having come from another physician), the result has been almost complete chaos. The prepayment agencies have been quick to retreat, and no standards have been enforced.

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Not all of these problems are unexpected. Many have been known to us for some time, but our attempts at repairing the obvious shortcomings have had obviously little success. I now feel that our failure to achieve the objectives of adequate health protection for our members and their families is due to the fact that we continually tried to patch up the older plans. Our attempt at piecemeal improvement through negotiating an additional cent or two to buy "improved" benefits simply has not worked. The increased benefits anticipated were largely illusory since, for example, improvements in fee schedules were discounted by higher charges. Whatever improvements are introduced seem to result in still greater costs to our members.

The labour movement generally, in response to the continuing and persistent demands for more and better health programs, has now admitted that the old piecemeal approach is largely ineffective. Now we are forced to reconsider basic objectives. Now we must reassess both the ends of medical care as well as the means to achieve them.

This task has not been approached lightly. Much time and effort have been expended by many people so that we could determine at least in which direction we must move in order to achieve the kind of health program which is desperately needed and obviously wanted, and which the science and art of medicine is capable of providing.

I would like to outline the kind of health program labour wants and which we are at present developing.

To begin with, the program which we seek will include the following features:

1. Comprehensive benefits to include all essential medical and related services for prevention, early detection of illness, treatment and rehabilitation. Such services will be organized in an efficient and effective manner so as to assure continuity and integration of the benefits so provided.

2. Built-in safeguards to ensure high quality and high standards of service. This implies not only careful selection of physicians and others by the medical staff, but also that the program be stimulating to professional achievement and conducive to high-quality practice. High standards also require that care be humane, considerate and dignified; that the patient be given an adequate understanding of the implications of illness, of the regimen to be followed and of how related services essential to his care can be obtained.

3. All parts of the program must be financed through the prepayment mechanism. It has been amply demonstrated that the costs of virtually all categories of health services and goods fall very unevenly among families, making it difficult for many families to pay for one type of needed service or another. Therefore, in order to eliminate

the financial barrier to proper health care, we believe that the insurance mechanism must be applied to all elements within a properly constructed health care program.

4. There must be provisions to maintain maximum efficiency and economy of operations. The importance of this objective, particularly at a time of rapid acceleration in costs, should require no elaboration.

As the best way to meet these objectives labour has adopted and reaffirmed its policy that the only way to achieve effectively a truly adequate program of health care for all Canadians is through a national comprehensive health program. Furthermore, we believe that only through such a national program can we achieve: (a) national planning of health needs and resources; (b) a universally available scheme within the reach of all; (c) the elimination of financial means as a passport to medical care; (d) the re-distribution of the financial burden of health and sickness through equitable taxation.

But while we in the labour movement advocate and work for the introduction of a national health plan, at the same time we are making plans for co-operatively owned and operated health centres through which high-quality, comprehensive health benefits can be made available to working people at a cost they can afford. Such health centres will utilize group medical practice as the effective medical organization best suited to providing high-quality services in the most efficient and economical manner.

There may be some who would question the rationale of supporting these two programs at the same time. We do not, however, see any conflict between the two. We sincerely believe that the only answer to an adequate health care program is through a national plan. At the same time labour's move to establish organized health centres is justified, and required, on the following two grounds:

1. To provide the best possible program of medical care during the period prior to the introduction of a national health plan; and

2. To demonstrate the best organizational structure for truly effective family health protection. We believe that we can demonstrate that a unified network of such group health centres, providing continuous and comprehensive family service, is the best, if not only, workable basis for the eventual national health plan.

The growth in scientific knowledge and complexity of the field of medicine led inevitably to increased specialization. Increased specialization resulted in fragmentation of a hitherto unified discipline and led to the growing isolation of specialists within the specialized fields of medicine. I have been told that at the present time there are some fifty or more separate and distinct medical and surgical specialties and subspecialties. It is inconceivable to me that any one physician could become competent in, let alone master, each of the various specialties. Since, therefore, there are many areas of medicine in which the individual physician has only limited training, experience and competence, it follows that increased specialization has resulted in a growing interdependence of the various medical practitioners. This interdependence means that the modern-day physician is compelled to depend on other specialists and also on a wide array of non-medical technicians. To assure that such co-operation can be efficiently achieved requires emphasis on organization and teamwork.

Group medical practice has evolved as the logical response to the need for better and more effective organization in the field of medical care. Through the group structure is gained the integration of the various specialties into an effective and competent team possessing the various elements of medical practice. Furthermore, the group can provide a continuity of care which is beyond the reach of the individual physician.

Moreover, group practice contains within itself the inherent potential for high quality. The individual physician within the group can readily mobilize on behalf of his patient all the professional and technical knowledge which the group as a whole possesses. Because his performance is an open book to his colleagues, he is constantly stimulated towards professional growth, a process that is further fostered by the group's clinical conferences, and by opportunities to attend scientific meetings, engage in postgraduate studies and undertake research projects.

From an economic point of view, too, group practice provides a logical answer to the tremendously increasing costs of medical care. Through the sharing and pooling of physical resources, equipment and overhead, as well as the non-medical and non-professional personnel, certain obvious economies are achieved. Furthermore, through shared use of resources and equipment, such as laboratories and x-ray machines, maximum efficiency in their use can be gained. By co-operative buying, the group is able to buy necessary equipment and apparatus which, because of its cost, no individual practitioner would be able to afford.

Actual experience of group practice prepayment plans, mostly in the United States, and the increasing number of research projects in this field are beginning to produce data which support these conclusions. The evidence indicates that group practice prepayment provides the best way thus far devised to achieve the objectives of quality and economy in medical care.

A study in which experience of a sample drawn from Health Insurance Plan of Greater New York subscribers (a group practice prepayment plan) was compared with a similar sample of non-subscribers showed that, whereas 74% of H.I.P. members were seen by a physician in the course of a year, this was true of only 57% of the non-

subscriber sample; while 90% of infants of H.I.P. families were under the supervision of a pediatrician during the first year of life, this was true of only 50% of the children of non-subscriber families. A more recent study conducted by an impartial agency, the Health Information Foundation, compares experience of subscribers to the Health Insurance Plan and those of another program, the Group Health Insurance of New York, which provides a similar range of benefits, but within a setting of solo practice, much the same as the physician-sponsored service plans in Canada such as Physicians' Services Inc., and Manitoba Medical Services. This study has shown that, while H.I.P. covers 80% of the costs of physicians' services, under Group Health Insurance only 59% of medical bills are met.

Other studies lend support to the hypothesis that comprehensive prepaid services provided through medical groups assure the maintenance of good standards of care. A study of perinatal mortality indicates that the risk of loss is about one-third lower among H.I.P. subscribers than among non-subscriber patients of private physicians. While the precise factors responsible for this difference have not been determined, at least part of the difference is probably attributable to the availability of qualified specialists in obstetrics and pediatrics.

The Health Information Foundation study referred to above indicates that Group Health Insurance subscribers, who differ from H.I.P. subscribers mainly in that services are rendered by solo practitioners on a fee basis, had 7.6 surgical procedures per 100 subscribers performed in hospitals, while H.I.P. subscribers had 4.3 such procedures or about a 44% lower rate of surgical operations. With adherence to standards both by the medical groups themselves and by the H.I.P. organization, it seems unlikely that serious surgical conditions are overlooked. Rather, it would seem that the fact that solo practitioners do not have as ready access to consultation throws on them a great burden of responsibility for making difficult judgments, and also, that there are many more incentives in solo practice for resorting to surgery.

Still other data show the economies that are possible in the utilization of costly hospital services. A study conducted by H.I.P. in co-operation with the New York State Blue Cross shows a substantially lower utilization of hospital services by H.I.P. subscribers than by Blue Shield subscribers. The H.I.P. group used 588 days of hospital care per thousand subscribers in a year, while the Blue Shield rate was 685 days per thousand subscribers. The hospital experience of the H.I.P. groups was not unique. Subscribers to the Kaiser Foundation Health Plan in northern California used 624 hospital days per thousand subscribers, the Group Health Co-operative plan in Seattle used 562 days, and the Group Health Association plan in the District of Columbia used 546. Compare this with the Blue Cross subscribers whose national average was 995 days per thousand persons.

On the basis of all the available evidence that we have been able to gather, we have come to the firm conclusion that group-practice prepayment holds the most promise of adequately meeting the health needs of working people and their families at a cost which can be met. Therefore, we have designed our programs in the light of the requirements for the development of such group-practice prepayment organizations.

Specifically, we visualize the inauguration of labour or community health centres through which full and comprehensive health benefits would be brought to workers and their families by teams of well-qualified medical and ancillary personnel. Such a program would be financed through premium payments which would be paid in whole or part by employers, much as are the present programs. The incentive for the employers would be that they would be getting the maximum value for their health insurance contribution dollar.

In the organization and administration of the program we believe very strongly that the consumer of medical services should play an important role. We believe that the consumer should be responsible for determining broad, overall policy in all non-medical matters, and we believe just as strongly that all medical and other professional matters and judgments must be left strictly and solely in the hands of physicians and other professional providers of service. Thus, while we visualize close co-operation and interdependence of the lay board of directors and the professional staff, we would tolerate no interference by the laymen in the professional techniques and judgments exercised by the medical and ancillary staffs.

Labour has long held to the position that we respect the rights, standards and integrity of members of the medical profession. We have no urge to dictate or to control the practice of medicine, for we know that we are not competent to do so. We want only to help bring into being the kind of programs and facilities that will attract the best doctors and that will bring out the best that is in them. We strive to develop the best method of organization and payment that will enable physicians to practise freely as their professional judgment indicates, with no economic barriers between our members and their services.

We know that without proper, sufficient, and satisfied medical personnel, no program of health care can possibly succeed. We know further that any successful program will require mutually satisfactory arrangements between those supplying medical services and those representing the consumers of medical services. We believe that such an arrangement can and will be satisfactorily achieved. We know that during all phases of the development and functioning of our program, we need the advice, co-operation and assistance of forward-looking and progressive-thinking members

of the medical profession. We need the services of highly motivated, well-trained and thoroughly competent doctors of medicine, general practitioners and specialists alike. We have every reason to believe that such support and assistance will be forthcoming.

I know that many members of the medical profession will be greatly encouraged by the interest which organized labour, the largest single body of consumers or recipients of medical care, is taking in this field. I am sure that what we are seeking to accomplish will be recognized by most doctors as an effective instrument for providing high-quality and comprehensive benefits to millions of Canadians. Furthermore, many doctors will recognize our program of prepayment group practice as the only effective organization for resolving the dilemma of increasing complexity and growing specialization within the field of medicine. We predict that the organizational structure which we are now developing will attract a great many highly qualified and highly motivated members of the medical profession who will join with us because they believe in the goals which we are trying to reach and also because they want to practise medicine as part of a well-organized, well-functioning team.

Our program embodies two basic features which organized medicine has often cited with approval. The first is the use of insurance principles and prepayment.

If I read your literature correctly, I understand that the Canadian Medical Association has never been opposed to the principle of prepayment. As a matter of fact, I believe that you have suggested that the consumers of medical care should prepay its cost to whatever extent they may wish.

I noted, in reading reports of the recent convention of the O.M.A., that the Ontario body heard strong recommendations for the establishment of a new extensive and inclusive prepayment plan. The fact that this was seen as the only alternative to what was described as "state medicine" does not alter the positive contribution of the recommendation.

The second feature of labour's program is group practice. I know personally that there are many physicians who believe this to be the best, if not necessarily the only way of assuring the highest quality of care. Not only are there many who hold this view, but recent statistics clearly demonstrate that solo practice is on the decline. On this subject I noted with interest the recent observations made by your Deputy President, Dr. E. Kirk Lyon, who predicted that "the future pattern of practice may be radically changed. The solo practitioner may become the exception rather than the rule, being replaced by medical groups and clinics."

It seems to me, therefore, that part of the difference in our approaches is that while representatives of organized medicine have advocated prepayment on the one hand, and group practice on the other, we in the labour movement are simply advocating bringing the two together. Surely this should seem a perfectly logical development.

While we anticipate the earnest support and cooperation of members of the medical profession, we are not so naïve as to expect no opposition from some individual doctors. I would doubt that your profession is far different from other organizations in our society. Therefore, while it may be that some members will feel threatened by new developments in the organization of health care programs, I would hope that these individuals are few in number and that the direction which you as a body will take, will recognize the need for and desirability of well-directed and carefully prepared and executed experimentation in the field of medical care organization and financing. I would hope that your organization would welcome organized labour's efforts in this field as a means of providing additional experience to add to the sum total of knowledge.

I believe that the members of the Canadian Medical Association would do well to heed the advice contained in the Report of the American Medical Association's Commission on Medical Care Plans (Larsen Commission) which said:

"The medical profession should assume a judicious, tolerant, and progressive attitude toward developments in the medical care field. The need for continued experimentation is recognized, and the profession should undertake, and actively participate in, the study and development of various mechanisms for the provision of medical care of high quality."

I am sure that labour can look forward to nothing but co-operative understanding from organized Canadian medicine. I interpret the invitation extended to me, for example, as an indication of your interest in our problems and our programs. I hope that this is indicative of a growing close association of our two groups which will prove to be beneficial for both of us and for the Canadian public generally.

PAGES OUT OF THE PAST: FROM THE JOURNAL OF FIFTY YEARS AGO

My first operation for gastric ulcer was performed on July 25, 1898. The case is reported in the *British Medical Journal* for October 21, 1899. Briefly, the patient was a woman 35 years of age. She had vomited large quantities of blood daily for seven days in spite of rest, and ice, bismuth, acetate of lead, etc. Previous to the onset of the haematemesis she had not had any symptoms of stomach disorder. She was blanched, and had a pulse of 136 to the minute. I found three superficial ulcers on the anterior wall of the stomach; two resembled fissures, and one was stellate. From the latter, blood escaped at three points. The cautery was applied; the stomach and abdomen were closed with drainage. There was good recovery, and several years afterwards the patient was in perfect health.—G. E. Armstrong, *Canadian Medical Association Journal*, 1: 103, February 1911.

MEDICO-LEGAL

MEDICAL MALPRACTICE LITIGATION–THE DOCTORS' DILEMMA*

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PART V OF FIVE PARTS

THE SOLUTION TO THE PROBLEM OF MALPRACTICE LITIGATION (CONTINUED)

The Role of the Individual Physician

What can the individual physician do to prevent malpractice litigation? There is much that he can do and, indeed, must do. In fact, one author has taken the view that prevention of malpractice litigation rests squarely and almost solely on the shoulders of the individual doctor:

> "All the studies and all the surveys will not reduce the incidence of malpractice claims or lessen the cost of malpractice insurance one iota. A malpractice claim can arise only out of the practice of the physician. It is incontrovertible that the one against whom claim or suit may be brought is the only one who can reduce malpractice claims to the irreducible . . ."[66]

There is a great deal of sense contained in this statement because the most effective site of preventing anything is at its source and the source of malpractice litigation is at the doctor-patient level. Therefore, if the doctor is aware of what he should or should not do in the course of practice, what duties he must observe, what pitfalls he should avoid, he will be well armoured against the possibility not only of suit but also of negligence. For the most part, the "do's and don't's" are just the essentials of good medical practice but they are easily overlooked or taken for granted. These have been reduced to a code of "commandments" which are presented here with accompanying commentary.[67-69]

1. *The physician should care for every patient with scrupulous attention to the requirements of good medical practice.*

This means that he must possess a degree of skill sufficient to meet the legal standards. He ought to maintain and improve this skill by postgraduate study. In addition, he must exercise this skill with care, diligence, and good judgment.

2. *The physician must know his legal duty to the patient.*

Failure of the physician to know his legal duty is stated to be one of the major causes of malpractice litigation.[6] It is essential that doctors be informed of the basic law governing their activities. Failure to be so informed can have two consequences:

(a) non-recognition by a physician of the fact a particular course is illegal until it is too late, and

(b) erroneous judgment of the acts of another physician by application of a non-legal standard to the other doctor's acts.

3. *The physician must avoid destructive and unethical criticism of the work of other physicians.*

This has been mentioned previously as an important factor in triggering malpractice suits. In fact, at least 25% of suits are said to originate in criticism of doctors by doctors, and estimates range even higher than this.[56, 68] The importance of this criticism in malpractice litigation may be gauged by the universal condemnation it receives from the pen of every author on malpractice.

4. *"Ideal" medical records should be kept in every case: records that would be presentable when offered in court; records that clearly show what was done and when it was done; records that indicate that nothing was neglected and that the care given fully met the standards demanded by the law. If any patient discontinues treatment before he should, or fails to follow instructions, the record should show it; a good method is to file a carbon copy of the letter which advises the patient against the unwise course.*

Medical records should include a medical history, a report on physical examination of the patient, and copies of all reports of laboratory work done. If there was consultation, the written consultation reports should also be included. In addition, progress notes should provide a continued history of the case, its complications and sequelae. The records should also report all instructions to the patient, prescriptions, or other therapy. The value of good records to the physician lies in the fact that if he can quote from them chapter and verse he can often prevent malpractice by clearly refuting a claim before suit, or if suit follows, he can defend himself successfully with documentary evidence of what actually transpired.

5. *The physician should be careful to avoid making any statement which constitutes or*

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which might be construed as an admission of fault on his part. Such an admission, which is usable against the physician, might be made to a third party as well as to the patient at any time before the trial. Such an admission may be made by an agent or employee of the physician during the course and within the course of his employment. It is important to instruct employees to make no statements.

Even where there has been no negligence on the part of a doctor, casual offhand remarks may be made under emotional stress to the patient or to others. An example of this is the case of the surgeon who, on sigmoidoscopy, perforated the bowel, immediately repaired the perforation, and on emerging from the surgery announced to the patient's husband: "Well, Jim, I sure messed things up today. I busted the bowel."[70] Such remarks, even in the absence of serious injury, can have adverse effects in the eyes of a jury. Moreover, they tend to lighten the patient's burden of proving negligence by medical testimony.

6. *The physician should exercise tact as well as professional ability in handling his patients. A proper professional manner and a sound attitude should be maintained at all times both towards the patient and towards the patient's family. The attentive physician may early sense some unsatisfactory and disturbing undercurrent, which may be prevented by the institution of protective measures from developing into something much more unpleasant. Thus, if the patient is not doing well, consultation may be suggested; if the patient is dissatisfied or complaining, or if the family's attitude indicates dissatisfaction, consultation should be demanded. The use of a consultant affords, in any case, great protection against a malpractice claim.*

The frequent and generous use of tact seems to be the very basis of malpractice prevention because it goes to the root of the physician-patient relationship. This has been emphasized earlier in the discussion of good human relations between doctor and patient. Tact on the part of the doctor is indicated on a multitude of occasions, e.g. in the discussion of fees or the statement of a prognosis. Above all, as a matter of both tact and ethics, the doctor must keep inviolate all confidential information received from his patient in the course of their relationship. The doctor necessarily learns much of a personal nature regarding his patient. Even a careless, to say nothing of a wilful, betrayal of confidences invites serious consequences in terms of litigation.

7. *The physician should refrain from over-optimistic prognoses and should avoid promising too much to the patient.*

This is an important admonition which is, in effect, an exercise of tact. It is reasonable to say that a patient who is given to expect more than he is likely to receive is prone to dissatisfaction and therefore to litigation.

8. *The physician must not abandon or neglect the patient.*

The relationship of physician and patient can be terminated without liability only in certain ways and under certain conditions. While the physician is under no legal obligation to undertake the care of any given patient, once he has done so he must give that patient the benefit of his skill and care until he is discharged by the patient or withdraws from the case. If the physician wishes to withdraw, he must give the patient reasonable notice to give him the opportunity of securing another physician. Similarly, the physician should advise his patients of any intended absence from practice and should recommend or make available a qualified substitute.

9. *The physician should unfailingly secure written consent for operation and for autopsy.*

Consent to operate or perform any procedure upon a patient is inextricably bound up with the question of malpractice because in the absence of consent the doctor has no legal right to act and if he does so he is guilty of assault. The sole exception to the necessity for consent is in the case of an emergency where immediate action must be taken in the interests of the patient's life or health in circumstances where it is not practicable to obtain consent. The prerequisites of a legal consent to surgery or other treatment are (1) that the procedure be a lawful one, e.g. consent to a criminal abortion affords no protection to the doctor performing it; and (2) that the person giving the consent is legally competent to give it, e.g. he must be an adult in a clear state of mind to authorize an operation upon himself, or he must be the parent or guardian to authorize an operation upon a child, or he must be the legal representative of a mentally ill person to authorize an operation upon such person. Where a procedure is made compulsory by law, e.g. vaccination, then consent is inherent in the law itself.

Consent does not have to be in writing; it is just as valid and binding if given orally and for most minor procedures oral consent is sufficient. However, for major surgical procedures it is a matter of practicality to secure a written consent to minimize the possibility of misunderstandings which may later plague the doctor and breed malpractice suits.

Written authorization should be secured, as well, for performance of autopsy and should be broad enough to permit removal of tissue if such is contemplated.

It has been also suggested that written consent be secured before use of hazardous drugs and chemical agents.

10. *The physician should carefully supervise assistants and employees and exercise great care in the delegation of duties to them.*

The physician must remember that under certain conditions the law may hold him vicariously responsible for the negligent acts or omissions of his assistants and employees. This liability is part of the general law of negligence whereby the master is held accountable for the negligence of his servants occurring during the course of their employment. Therefore, while the physician may delegate responsibilities which do not require professional judgment, he should do so with care and he should supervise his delegates. An example of the physician's vicarious liability is where he is held liable for burns suffered by the patient while x-ray films were being taken by a technician in the employment of the doctor. The common test applied by the courts in many cases has been the degree of supervision and control exercised by the doctor during the occurrence of the alleged negligence. Therefore, while the doctor is not as a rule liable for the negligence of nurses, interns, or other hospital employees, he may be held liable for the negligence of operating-room staff during surgery. It is worthy of notice, too, that every doctor who practises in a partnership is liable for the negligence of his partner or partners.

11. *The physician should have some knowledge of the Statute of Limitations and of its significance.*

In British Columbia, the Medical Act provides that an action for negligence against a physician must be commenced within one year of the termination of the services out of which the negligence is claimed to have originated. This period of limitation also applies where the patient seeks to counter-claim malpractice when the physician sues for his fees. Since the physician has six years by law in which to sue for his fee, the one-year limitation period on the patient's action affords him a degree of protection from frivolous allegations of malpractice. The significance of this protection should be realized by the doctor when he feels disposed to press for payment of his fees before the limitation has expired. If the physician is patient and waits until the malpractice period of limitations has expired, he may not only restrain a nuisance suit which is merely retributive in nature, but he may even receive eventual peaceful payment. "A just cause should not be hurried on its course."

12. *In his selection of patients, the physician should limit himself to such fields as are well within his qualifications. He should keep abreast of progress in the medical profession.*

This commandment may be viewed as an extension of the first commandment that the physician should care for every patient with scrupulous attention to the requirements of good medical practice. Good medical practice may require that the physician disqualify himself from the performance of any services which may be beyond the scope of his training or experience. While self-assurance is a desirable trait in a doctor, wisdom dictates that he realistically accept his limitations. A readiness to consult is a good protection against malpractice.

13. *The physician should frequently check the condition of his equipment and make use of every available safety installation.*

X-ray machines, diathermy equipment and similar diagnostic and therapeutic apparatus utilizing electrical energy or chemical agents should be checked frequently for both adequacy and safety of function. That this admonition is a timely one appears from the frequency in which malpractice suits are based upon burns allegedly received during x-ray or diathermy procedures. While human error may often enough cause such injuries, there is no reason to court disaster by ignoring the possibility of mechanical defect.

14. *In the treatment of the patient, the physician must not experiment.*

The physician of ancient Egypt was not accountable in any way for the result of his treatment as long as he did not stray from the traditional prescribed practice. If he deviated one iota and the result was bad, his life was forfeit. Similarly, the modern doctor invites dire consequences by experimenting in the treatment of his patients. If his treatment is successful he may be a hero, but if it is not, as it might well not be, he may suffer greatly for his trail-blazing effort. A case in point is that of the promising young surgeon who performed a simple circumcision by use of electrocautery, rather than by the usual method of clamping and excision, with the result that the infant patient suffered a sloughing of the glans penis. The surgeon was not only sued successfully for malpractice but he also lost his practice into the bargain.[71]

15. *The physician should arrive at an understanding in the matter of fees. Misunderstanding in this matter, particularly when the question of excessive fees arises, contributes an avoidable element of risk.*

Misunderstanding about fees causes a high proportion of malpractice suits and this subject must be approached frankly and with the realization that patients have many other financial obligations. This

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is another aspect of the doctor-patient relationship that requires tact and deserves special emphasis.

16. *The physician should realize that it is hazardous to sterilize any patient except when a medical indication exists.*

It is the opinion of an eminent Canadian medico-legal authority that voluntary sterilization of the healthy individual is illegal and requests for it whether by man or woman should be refused absolutely.[72] This point has evidently not come before the courts for decision and this opinion is not based on reported legal decisions. However, if the illegality of sterilization in the absence of medical indications should be upheld by the courts, then the doctor who performs such an operation exposes himself not to an action for malpractice but to suit for assault. It is, of course, accepted that sterilization is legal when it is (a) an incidental part of a medical or surgical procedure necessary for the preservation of the life or health of the individual, or (b) performed pursuant to legal provision, as in British Columbia and Alberta where sterilization of mental defectives is permitted under certain circumstances. Apart from these exceptions, the doctor who refuses to sterilize even with consent can incur no liability.

17. *The physician should realize that because of the possibility of error in transmission, it is dangerous to telephone a prescription.*

There are cases on record of patients receiving overdosages or even the wrong drug because of an error in telephone transmission of the prescription. A prescription should not only be in writing, but clearly written.

18. *Except in actual emergency, no female patient should be examined unless a third person is present. There is no more serious or destructive charge in the "malpractice book" than that of undue familiarity, and the only way to avoid claims of this sort seems to be to have someone else present during all examinations.*

This statement speaks for itself.

19. *The physician should secure legal advice if he is called to attend a coroner's inquest as a witness in a case in which he has been in professional attendance.*

A physician is often called upon to give evidence regarding a patient he has attended, not only in a coroner's court but also in higher courts. In any court allegations may be made or contentions submitted which may impugn the physician's professional status. It is therefore wise to seek protection against such possibility by securing legal representation or advice beforehand.

20. *The physician should never reveal that he carries professional liability insurance. He should never write a letter or make any statement with reference to a malpractice claim, except on the recommendation of his legal adviser. Immediately on being advised of even the possibility of suit, he should consult with his attorney.*

The presence of liability insurance may prompt a prospective plaintiff to initiate a malpractice suit because of the supposed certainty of receiving payment if a large award is made by the court. It is wise, therefore, not to put the spark to the fuse by revealing that insurance is carried. It must not be thought, however, that physicians who carry little or no coverage at all are therefore unlikely to be sued: the absence of insurance is no protection whatever and in fact could have serious financial consequences. Therefore, although the doctor should not reveal the fact that he is insured, he must certainly carry some form of insurance against malpractice actions, whether by membership in a mutual medical defence union such as the Canadian Medical Protective Association or by coverage bought from an insurance company. The wisdom of being insured is dictated by the frequency with which doctors are sued even when they have performed competently.

It is incumbent on the doctor to co-operate fully with his insurer from the very moment that there is a threat of suit. He cannot let an action proceed against him and then rely upon his insurance if the results are adverse to him. Therefore, from the first hint that there is a possibility of the patient suing, he should be guarded in what he says and immediately advise his insurer—he should not wait until the word "lawsuit" is mentioned. It is vital that the doctor be completely frank and candid with his insurer and state all the pertinent facts, both favourable and unfavourable.

21. *The physician must render sufficient care to his patient by way of general instructions, frequency of visits, clinical, laboratory and x-ray investigation.*

The physician must find or anticipate any condition reasonably determinable or reasonably likely to develop. In order to do this, he must render such care as is sufficient to reveal the patient's true condition and he must not resort to the half-measures and shortcuts which may only lead to legal difficulties. That the physician's care should be sufficient and adequate for the needs of a given patient would appear to be axiomatic and a normal requirement of good medical practice. Still, one medico-legal authority states that a major legal pitfall leading to malpractice suits is the tendency of some doctors to fail to render complete care because of undue concern for the patient's financial situation or because of underlying insecurity in the doctor himself.[60]

For example, a doctor may hesitate to order certain tests such as x-rays because he doubts that the patient can really afford them. Or he may fear that the patient will think he is trying to create fees by requesting follow-up visits. Or, again, he may wonder if it is an admission of failure to suggest a consultation. The doctor must purge himself of such thoughts and fears and should take such steps as may be necessary to make a complete diagnosis by using recognized diagnostic aids as indicated. He should also utilize indicated prophylactic measures, give instructions as needed, follow up original treatment or operation, and institute measures to protect contacts.

22. *The physician should take every precaution to reduce the risk of hazard to the patient in the use of dangerous drugs and procedures by observing the following principles:*[61]

(a) Exhaust all reasonable methods of study to secure a diagnosis before embarking on a therapeutic course.
(b) Use conservative, less dangerous methods of diagnosis and therapy before utilizing toxic agents or dangerous procedures for either diagnosis or therapy, i.e. be conservative first.
(c) Read the manufacturer's circular or brochure accompanying an agent to be used for diagnostic or therapeutic uses and ascertain the customary dosage.
(d) Know the possible toxic manifestations of the drug being used and the proper methods of treatment for such reactions.
(e) Do not use potent and toxic drugs and antibiotics for trivial complaints.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In the foregoing material an attempt has been made to present a broad view of the subject of medical malpractice litigation from both its legal aspect and as a modern social phenomenon of vital concern to the medical profession. With this objective in mind, the present examination has touched upon the principles of malpractice law, their evolution and modern application. In addition, evidence was adduced to prove that present trends in the direction of increasing incidence of malpractice litigation pose a problem of vital concern to the medical profession. An attempt has been made to demarcate the dimensions of this problem, to define its causes, and to determine what measures might be taken to solve it.

Upon studying the material presented in this thesis, several conclusions may be drawn. Firstly, trends in medical malpractice litigation challenge the medical profession not merely with a problem but with a veritable dilemma which, if unresolved, foretells of deleterious effects upon the practice of medicine. Secondly, while the causes of this dilemma are multiple, the remedy fortunately lies in great measure within the power of the physician acting through medical societies and particularly acting in his individual capacity. Furthermore, the role of the individual physician in resolving this dilemma cannot be overemphasized because the basic cause of malpractice litigation is poor physician-patient relations and the basic preventive measure is good physician-patient relations.

Several recommendations are derived from the present study. Firstly, education regarding medical malpractice should form some part of the medical school curriculum, so that the physician may be informed on this subject at an early stage in his career. Secondly, medical organizations should provide for the continued education of their members on the subject of malpractice so that they may be aware of developments as they arise. Thirdly, every physician, whether specialist or general practitioner, should learn well and apply diligently the suggestions for prevention outlined in this thesis. Finally, every physician should secure protection against malpractice litigation, either by joining a medical protective association such as the Canadian Medical Protective Association, or by purchasing insurance coverage from an insurance company.

It is submitted that the implementation of these recommendations will represent giant strides in the direction of sparing physicians frivolous and harassing journeys to the courtroom and thereby bid fair to solve the doctors' dilemma.

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CASE REPORT

STREPTOMYCIN AND ACUTE ANAPHYLAXIS

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THE MEDICAL profession is now prepared for the anaphylactic shock which rarely follow the administration of penicillin, and its occurrence is not considered overly unusual. However, a similar response to the administration of streptomycin is practically unknown in most centres. The purpose of this communication is to report a case which appears to be one of anaphylaxis due to streptomycin.

R.M., a 50-year-old white man, was admitted to Westminster Hospital, London, Ont., on July 29, 1960, having been beaten and robbed on the night of July 26. He was in considerable distress on admission. His entire face was swollen and discoloured; there were multiple abrasions of the face, chest, and left arm. His pulse was 88 per minute and regular; blood pressure was 100/60 mm. Hg. His chest was emphysematous, and scattered expiratory rhonchi were heard throughout both lungs. Roentgenogram revealed fractures of the anterior portions of the left ninth and tenth ribs. Because of obvious infection of the facial abrasions, systemic antibiotic therapy was instituted with tetracycline and streptomycin; penicillin was not used because of a history of an anaphylactic response to this drug in 1957.

On the morning of August 2, within two minutes of the intramuscular injection of 0.5 g. of streptomycin, the patient suddenly became very flushed about the face, and his lips and nail beds became very cyanosed. He began to thresh about in bed; 120 mg. of phenobarbitone sodium (Luminal) and 75 mg. of meperidine (Demerol) were given successively, intramuscularly, without obvious effect. Ten minutes later he was still very flushed and remained cyanotic about the lips and nail beds. He was threshing about in bed, and complaining of pain in his back; repeated questions were answered semi-intelligently. His respirations were shallow and panting at 65 per minute. The heart rate was 160 per minute, and blood pressure was unobtainable. Hydrocortisone (Solucortef) 100 mg. was given intravenously with no obvious effect; ten minutes later 1.0 mg. of metaraminol (Aramine) succeeded in raising the systolic blood pressure to 50 mm. Hg. The patient then complained of bowel urgency, and produced an astounding amount of normal-appearing feces. Intermittent intravenous metaraminol was required for the next six hours to sustain his blood pressure at systolic levels ranging from 40 to 70 mm. Hg. During this time he remained hyperactive in spite of his hypotension. His fecal urgency continued for a further 12 hours; as this went on, bright red blood appeared, mixed with the stool, presumably owing to the trauma of repeated forceful defecation. Twenty-four hours after the injection of streptomycin, he had returned to his previous normal state.

The patient then related that this episode corresponded in all respects to his reaction to penicillin in 1957. The nursing staff were closely questioned in an attempt to rule out the possibility of accidental administration of penicillin or penicillin-streptomycin mixture instead of streptomycin. It seems certain that this man received streptomycin and streptomycin alone, immediately preceding this episode. Subsequently many investigations were undertaken: chest radiography, electrocardiography, liver function tests, kidney function tests, upper and lower gastrointestinal radiography, and sigmoidoscopy, as well as urinalysis and hemogram. The only abnormalities found were inability to con-

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centrate urine beyond a specific gravity of 1.016 on two urinary concentration tests, and a rare finely granular cast on microscopic examination of the sediment in one of ten urinalyses. The ability of the kidney to dilute urine was not impaired. The patient was sent home well on August 26, 1960, and has had no further difficulty.

DISCUSSION

The most common toxic hazard of streptomycin administration is that of damage to the eighth cranial nerve;[5, 8, 9] other toxic manifestations that have been reported include optic atrophy, paresthesias about the mouth, diabetes insipidus, encephalitis and encephalomyelitis.[8] The more common allergic hazards are more frequently seen in those who handle the drug rather than in those who receive it therapeutically;[1] skin hypersensitivity in varying degrees is the manifestation most often seen, although asthma, drug fever, and eosinophilia may occur.[8] The more serious manifestations of allergy include aplastic anemia, thrombocytopenic purpura, lower nephron nephrosis, and anaphylactic shock. Streptomycin rarely gives rise to alarming sensitivity reactions, and when sensitivity reactions arise they are rarely fatal.[4] Farber, Ross and Stephens[3] polled over 1000 California physicians for their experience with anaphylactic responses to antibiotics, and reported the following replies: penicillin, 520 moderately severe cases of anaphylaxis, 323 severe cases and seven deaths; streptomycin, 49 moderately severe cases, 10 severe cases and no deaths. In the same series, no deaths were attributed to penicillin-streptomycin mixtures or to other antibiotics.

Hypersensitivity to streptomycin usually occurs only after prolonged contact with the substance.[1] In the present case, the reaction became manifest on the eighth 12-hourly dose of the drug. McCoy's patient[7] gave a history of previous injections of streptomycin and a slight rash after use of the drug eight months before the anaphylactic response, and Gupta's patient[4] had been receiving streptomycin in full doses for a month before onset of diarrhea, skin rash, and fever four days before the appearance of anaphylactic shock. In our case there was no history of previous administration of streptomycin, nor were there any premonitory signs.

Agitation is not usually a manifestation of shock, although it may be present in the younger patient with unimpaired cerebral circulation.[2] This was so extreme in the present patient that continuous intravenous therapy could not be considered, and we were forced to resort to intermittent intravenous therapy with metaraminol rather than a noradrenaline (Levophed) drip. The massive fecal urgency was an unusual feature of this case, but it is another manifestation of hypersensitivity.[5] The rectal bleeding must be considered to be the result of trauma from repeated forceful defecation, as digital rectal examination, sigmoidoscopy and complete radiological examination of the gastrointestinal tract failed to identify any lesion which could have produced this sign.

Gupta[4] repeated the administration of 0.5 g. of streptomycin under the cover of 150 mg. of cortisone five days after the episode of anaphylaxis in his patient and the anaphylactic cycle was repeated, the patient remaining critically ill for four hours; in fact, he sustained a posterior myocardial infarction, presumably secondary to prolonged hypotension. This deterred us from attempting to prove the diagnosis in this case, even by the administration of a minute dose of streptomycin as an intracutaneous test as suggested by Cohen and Glinsky.[1] Hence, the diagnosis in this case must remain presumptive only, although we feel that the available evidence is strongly in favour of this diagnosis.

The most frequently reported successful form of therapy has been a continuous intravenous drip of noradrenaline,[4, 7] but in the present case an equally good effect was obtained with intermittent intravenous metaraminol given as required to sustain the blood pressure. Some authors[3, 6] suggest the use of 1:1000 adrenaline and an antihistamine intravenously, but these agents were not used in this case.

SUMMARY

Anaphylaxis to streptomycin, although far more rare than that due to the administration of penicillin, can and does occur. A presumed case of this entity is presented. Anaphylaxis appeared after the eighth 12-hourly dose of streptomycin and was characterized by agitated shock and massive fecal urgency productive of blood in the stool, presumably due to trauma. This patient was treated with intermittent intravenous metaraminol to maintain the blood pressure for the first six hours, after which the patient rapidly improved to regain his normal state within 24 hours. Extensive laboratory investigation over the ensuing three weeks disclosed only a mild defect in the concentrating ability of the kidney, and a rare granular cast seen on one of ten microscopic examinations of the urine. Not only penicillin, but *any* of the antibiotics, can cause anaphylactic reactions, and physicians must be prepared to treat these reactions should they occur.

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SHORT COMMUNICATION

TREATMENT OF POSTOPERATIVE EDEMA BY INTRAMUSCULAR TRYPSIN

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A PROBLEM of great concern to surgeons is postoperative edema. The discovery of an agent which could combat edema would be especially appreciated by neurosurgeons who consider the edema which results after the closure of an incision in a non-expansible area, a dangerous and often fatal hazard. The discovery of an anti-edema agent therefore would be most welcome, and any compound found to be effective in laboratory tests should be investigated in humans to determine its clinical usefulness.

Crystalline trypsin in oil or aqueous solution, for intramuscular use as an anti-inflammatory agent,‡ has been used by the authors over a period of a few months in various cases of cerebral edema, postoperative musculocutaneous or traumatic edema and edema following investigative procedures productive of trauma.

METHODS AND RESULTS

The oil suspension or aqueous solution was administered by the deep intramuscular route in doses of 2 ml. (1 ml. for children). The oil suspension was abandoned because it was found to be painful and no more effective than the aqueous solution. The dose was repeated every six or eight hours according to the severity of the edema, with a minimum of three doses (in patients subjected to arteriography, pneumoencephalography, ablation of the infraorbital nerves, etc.). A maximum of 16 doses was administered over a four-day period. In only one instance was trypsin administered intramuscularly in a dose of 2 ml. three times daily for nine days. This patient had severe tuberculous arachnoiditis; this form of treatment was suggested by Jackson *et al.*[5] for this condition. (The results were negative, presumably because of the severity of the condition in this patient.)

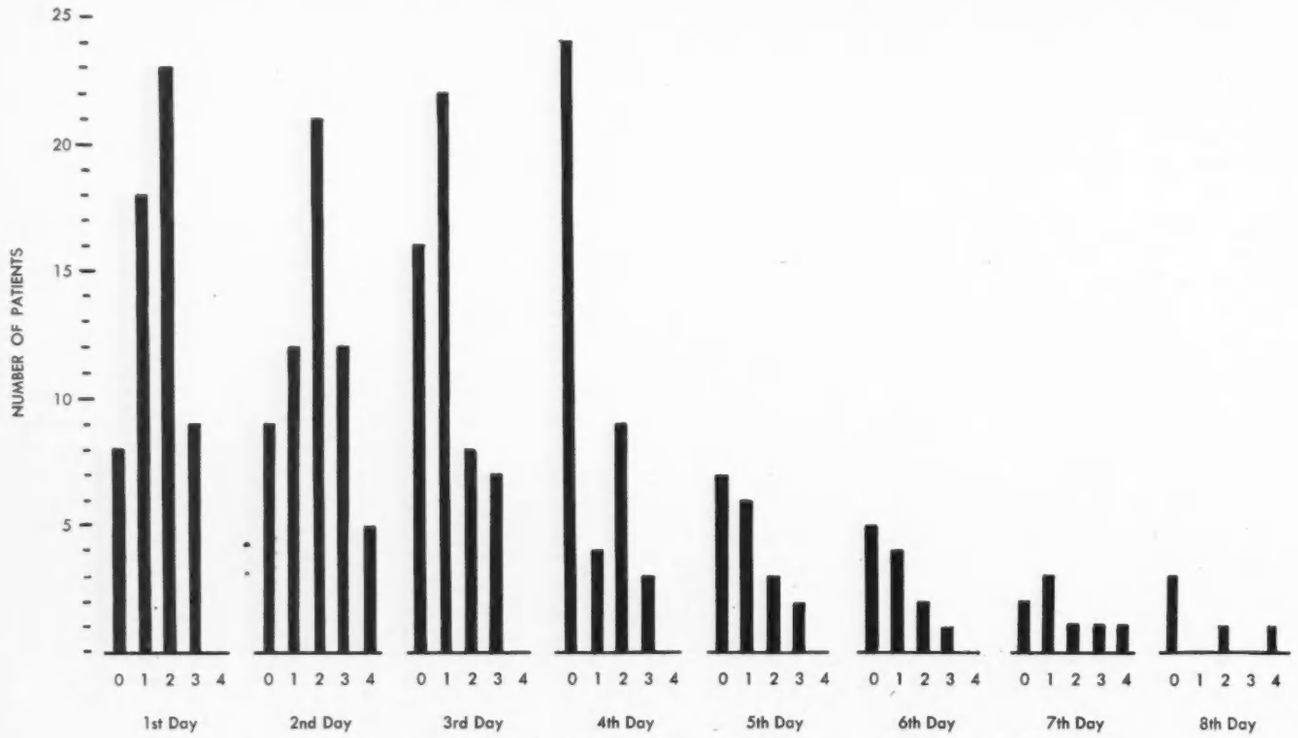

Fig. 1.—Distribution of patients showing 0 to 4 + edema from the first to the eighth postoperative day. (Patients with zero edema for 24 hours were excluded from subsequent tabulation.)

A total of 54 patients (31 men and 23 women; 23 below 15 years of age and 5 over 60) were treated. Of these, 41 had undergone intracranial surgery, 7 extracranial surgery and 3 laminectomy for intradural or extradural surgery (herniation of the disc, chordotomy, medullary tumour). The others (13 patients) suffered from trauma or were expected to develop local edema because of the difficulties encountered in the performance of certain tests; in patients who had undergone pneumoencephalography it was feared that acute cephalgia might develop.

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‡Parenzymol (Frank W. Horner Limited, Montreal).

TABLE I.

Name	Age and sex	Diagnosis	Surgery	Day trypsin therapy started	Dosage	Degree of Edema (Days after Surgery) 1	2	3	4	5	6	7	8	Other anti-edema treatment
G.P.E.	57 M	R. occipitoparietal astrocytoma	R. parieto-occipital craniotomy	Post surgery 1	2c.c. q.6h./3 days 2c.c. q.12h./2 days	XX	XXX	XXX	XX	—				
D.C.	35 M	Hypophyseal adenoma	R. temporoparietal craniotomy	1	2c.c. q.8h./4 days	XXX	XXX	X	—					
G.P.	34 M	L. temporal 3° astrocytoma	L. temporal craniotomy	1	2c.c. q.8h./3 days	XXX	XX	X	—					
Sr. St.A.	36 F	Temp. astrocytoma	R. frontotemp. craniotomy	2	2c.c. q.8h./4 days	XX	XX	X	—					
J.G.	26 F	Hypoph. adenoma	Transfrontal craniotomy	Day of operation	2c.c. q.6h./3 days 1c.c. q.8h./1 day 2c.c. q.12h./1 day	XXX	XXXX	XXX	XX	—				
B.E.	45 M	L. temp. 3° astrocytoma	Temporoparietal craniotomy	1 7 (recurrence)	2c.c. q.12h./2 days 2c.c. q.4h./4 days	XX	XX	X	—	—	X	XXX	XXXX	(Died)
F.A.	59 F	L. posterior parietal metastasis	L. parietal craniotomy	1	2c.c. q.6h./3 days	XX	XX	X	—					40 g. urea i/v preoperatively
Sr. M.L.	51 F	R. frontal meningioma	R. frontal craniotomy	1	2c.c. q.6h./4 days	XXX	XXXX	XX	—					
Sr. M.D.J.	54 F	L. parietal meningioma	L. fronto-temporal craniotomy	1	2c.c. q.6h./2 days 2c.c. q.12h./2 days	XX	XX	XX	X	—				
S.J.	37 F	L. frontotemporal glioblastoma	L. temporoparietal craniotomy	2	2c.c. q.8h./4 days 2c.c. q.12h./3 days	X	XXX	XX	XX	XX	X	X	—	
Q.D.	50 F	Generalized metastases	Hypophysectomy, parietal and fronto-temp. craniotomy	2	2c.c. q.8h./3 days	X	XX	XX	XX	X	—			
F.G.	51 M	R. temp. glioblastoma	R. temp. craniotomy	1	2c.c. q.8h./7 days	XX	X	—						
J.R.	33 F	Cerebral metastasis	L. parietal craniotomy	1	2c.c. q.6h./3 days 2c.c. q.12h./1 day	X	XXX	XX	X	—				
L.L.F.	46 M	Ruptured aneurysm of anter. cerebral artery	L. frontoparietal craniotomy	1	2c.c. q.6h./2 days 1c.c. q.12h./2 days	XX	XXXX	—						40g. urea i/v 1st day post-operatively
S.O.L.	60 M	Aneurysm of communicating anterior artery	R. frontotemporal craniotomy	1	2c.c. q.12h./3 days	XX	XX	X	—					
L.R.	69 M	L. subdural hematoma	L. parietal craniotomy	2	2c.c. q.8h./3 days 2c.c. q.12h./2 days	XXX	XXXX	XXX	XXX	X	—			
Sr. P.S.E.	33 F	L. subdural hematoma	1. L. temporo-parietal craniotomy 2. Re-operation	— 1 (8th of 1st operation)	— 2c.c. q.8h./6 days	X XX	X XXX	— XXX	XXX	XXX	XX	X	—	Vit. K
L.R.	48 M	Hemorr. softening of L. temp. lobe	L. temporoparietal craniotomy	Day of operation	2c.c. q.6h./5 days 1c.c. q.6h./2 days	X	XXX	XX	XX	X	—			
G.S.	60 M	Neurinoma of VIII nerve R.	R. suboccipital craniectomy	2	2c.c. q.12h./3 days	X	XXX	XX	—					
G.D.	80 F	Tic douloureux of the V nerve L.	L. suboccipital craniectomy	1	2c.c. q.12h./2 days	X	XX	—						
C.E.	70 F	Tic douloureux of V nerve bilateral	R. occip. craniectomy, L. suborbital avulsion	1	2c.c. q.12h./3 days	XX	XX	X	—					
B.S.	51 M	Tic douloureux 1st and 2nd branch of V nerve	R. supra- and sub-orbital avulsion	Day of operation	2c.c. q.6h./4 days	XXX	XXXX	X	—					
Sr. S.J.	45 F	Tic douloureux 2nd branch of V nerve L.	Supraorbital avulsion	Day of operation	2c.c. q.12h./3 days	XXX	XXX	X	—					
R.E.	51 F	R. intercostal neuralgia	L. cerv. cordotomy	1	2c.c. q.12h./1 day	X	—							
C.M.	40 M	Ruptured disc. hernia C_6-C_7 L.	Cerv. laminectomy	2	2c.c. q.12h./2 days	—	XX	X	—					
M.	54 M	Herniated disc. Lumbar	Lumbar laminectomy	1	2c.c. q.12h./2 days	X	XX	X	—					
C.J.H.	52 M	L. cereb. thrombosis	Difficult L. carotid arteriography	Same day	2c.c. q.12h./1 day	—	—							
G.Y.	24 M	Diagnostic study	Difficult L. arteriography	Same day	2c.c. q.12h./1 day	—	—							
S.M.A.	32 F	Tuberculous arachnoiditis	Bilateral sub-occip. craniectomy	1 10 for therapy	2c.c. q.6h./4 days 2c.c. q.8h./9 days	X —	XX —	X —	— —					No visible therapeutic results
D.C.	35 M	Postoperative flap infection	Cranial ostectomy	1	2c.c. q.12h./2 days	X	—							

[a] Cases appearing above treated at Hotel-Dieu.

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TABLE I—*(Continued)*

Name	Age and sex	Diagnosis	Surgery	Day trypsin therapy started	Dosage	Degree of Edema (Days after Surgery) 1	2	3	4	5	6	7	8	Other anti-edema treatment
C.G.	9 M	Hirschfeld's hemisphere	Hemispherectomy	2	1c.c. q.12h./3 days	×	××	×	—					
L.C.	13 F	Refractory epilepsy	L. front. lobectomy	1	1c.c. q.12h./2 days	×	××	—						
P.J.D.	16 M	Craniostenosis	Frontal craniotomy	Same day	1c.c. q.8h./5 days	××	××	×××	××	×	—			
T.J.	13 M	Refractory epilepsy	R. front. lobectomy	1	1c.c. q.12h./3 days	××	××	×	—					
F.L.	6 F	Cereb. lipoidosis	Cereb. biopsy	1	1/2c.c. q.12h./3 dys.	×	×	—						
L.G.	9 F	Leukoencephalitis	Cereb. biopsy	2	1c.c. q.12h./3 days	—	×	×	—					
L.F.	10 F	Encephalitis	Cereb. biopsy, frontal lobectomy	Same day	1c.c. q.12h./2 days 1c.c. q.24h./3 days	××	××	×	×	—				
D.N.	13 F	R. fronto-orbital osteoma	Frontal craniotomy	1	1c.c. q.12h./3 days	××	×	—						
M.L.	11 F	L. cerebellar astrocytoma	Subocc. craniectomy	1 and 6 (recurrence)	1c.c. q.24h./2 days 1c.c. q.24h./2 days	× —	× —	— —	—	×	×	—		
D.D.	15 F	Intracerebral hematoma	L. frontoparietal craniotomy	2	1c.c. q.12h./1½ dys.	×	×	—						
L.G.	11 M	Brain abscesses (recurrent)	Craniotomy 3 times	1 1 1	1c.c. q.8h./6 days ¾c.c. q.12h./1 day 1c.c. q.8h./2 days	×× — ×	××× — ×	××× — —	×× — —	××	×	—		Orenzyme® 2c.c. q.8h./6 dys preoperatively
G.D.	8 F	Depressed fracture L. parietal	Craniotomy	1 and 4	1c.c. q.24h./2 days 1c.c. q.24h./2 days	××	×	×	××	×	—			
G.D.	5 M	L. front. fracture	Craniotomy	1	½c.c. q.12h./3 days	××	××	×	—					
C.S.	11 M	R. front. fracture	Craniotomy	1	½c.c. q.8h./3 days 1c.c. q.8h./2 days	××	×××	××	××	××	××	×	—	
B.H.	4 F	Bilateral temporo-parietal fracture	Craniotomy	1	1c.c. q.24h./5 days	××	××	×	×	—				
H.M.	7 M	Cereb. bruise	—	1	1c.c. q.8h./3 days	×××	×××	×	—					
L.D.	4 M	R. occipitofronto-pariet. fracture-hematoma	R. temporopariet. craniotomy	2	1c.c. q.24h./3 days	××	×	—						
L.R.	14 M	Concussion of brain	—	Same day	1c.c. q.8h./1 day	××	×	—						
L.L.	13 M	R. front. fracture	R. front. craniotomy	1	1c.c. q.12h./3 days	××	××	×	—					
L.G.	4 M	Depressed fracture R. pariet.	Parietal craniotomy	1	1c.c. q.24h./1 day	—	—							
P.A.	2 M	R. front. fracture	Debridement, dura mater suturing	Same day	1c.c. q.24h./3 days ½c.c. q.24h./2 dys.	××	××	×	—					
R.N.	4 M	R. front. fracture	Lifting fracture, bone cranioplasty	1	1c.c. q.24h./2 days	×	×	—						
L.A.	7 M	Serious concussion	—	1	1c.c. q.12h./10 dys.	×××	×××	×××	×××	×××	×××	××	××	(Died)
G.I.	4 M	R. pariet. fracture with serious loss of cereb. substance	R. pariet. craniotomy, cranistomy for plasty of dura mater	1 1	1c.c. q.24h./12 dys. 1c.c. q.24h./1 day	Only case with allergic-type reaction								

Cases appearing above treated at Ste-Justine Hospital.

A control group who would receive placebo injections was not used because of the inherent danger in not treating these patients. Patients who did not receive trypsin—and these were very few—were those who showed no edema, or edema of such a minor degree that there was no reason to warrant its reduction. Table I summarizes the diagnoses, dosage and results obtained in the treated patients. Although no objective method is available to enable quantitation of the results obtained, the degree of edema in these patients was assessed.

The distribution of patients according to the degree of edema present, determined daily for an eight-day period after operation, is recorded in Fig. 1.

DISCUSSION

Intramuscular trypsin therapy was considered an effective anti-edema agent because (1) it was possible from the second postoperative day to examine the patient's pupil closely after frontal or frontoparietal surgery; the edematous eyelids could be easily opened; (2) temporary aphasia or partial aphasia was absent in patients who underwent left craniotomy; (3) movements of the neck were easily performed the day after difficult carotid arteriography, and (4) the patients could turn in bed with relative ease on the second day after a laminectomy and were able to get up without experiencing excessive pain. There are further points in

favour of the use of intramuscular trypsin for postoperative edema.

Gazzaniga *et al.*[6] administered intramuscular trypsin to patients after cranial operations or trauma. Results of therapy were determined by the daily measurement of cerebrospinal fluid pressure for a week or more after the trauma or surgery. In patients who received no trypsin the cerebrospinal fluid pressure reached a maximum 48 hours after surgery and gradually returned to normal between the 10th and 15th postoperative day. Patients who had received trypsin showed a definite decrease in the pressure of the cerebrospinal fluid as compared with the untreated cases. The treated patients had a lower pressure, and pressure returned to normal limits within four to six days after operation. These investigators also noted an earlier clinical improvement in neurological symptoms and an earlier recovery of consciousness; in the patients reported above, similar findings were noted.

As a result of these observations the authors give trypsin routinely to all patients undergoing craniotomy, to a few undergoing laminectomy and to some who have undergone procedures which are liable to cause edema, either intracranial, muscular or cutaneous. This is particularly true for operations in the vicinity of the eye, which can cause serious edema of the eyelids. The exceptions to the routine use of trypsin are patients in whom there is an abnormal exudation owing to a change in the blood picture, or to a pre-existing hematoma or after operations when exudation could be dangerous. This is considered necessary because trypsin might intensify small hemorrhages under certain circumstances. For this reason the authors have always given trypsin the *day after* surgery, and practically never on the day of surgery. The latter method was used only in patients in whom there was absolutely no exudation or danger of hemorrhage. This seems to be the only major precaution when administering trypsin. In only one instance was an allergic type of reaction observed in this series. This was in a child who showed restlessness, a rash and dyspnea; this reaction disappeared after the drug was discontinued and reappeared with the subsequent injection of a dose of 1 ml.

Another point worth noting is that other drugs, such as vitamin K or intravenous urea, may be administered with trypsin without added risk.

While intramuscular trypsin may not yet be the ideal agent in the treatment of localized postoperative edema, it represents a step forward in the therapy of a most difficult surgical problem.

SUMMARY

The effect of administration of intramuscular trypsin (Parenzymol) was studied in 54 patients with cerebral edema, postoperative musculocutaneous edema or traumatic edema. The degree of edema was markedly less than expected in those patients who received the agent. It is concluded that parenteral trypsin is an effective form of therapy for postoperative edema.

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RÉSUMÉ

Les auteurs ont traité differents cas d'œdème postopératoire ou traumatique, soit cérébral soit musculo-cutané, par l'administration par voie intramusculaire profonde d'une solution de trypsine, en doses unitaires de 2 c.c., ou 1 c.c. pour les enfants, 2 ou 3 fois par jour. Les cas traités sont en nombre de 54, la durée du traitement varie de 1 à 4 jours. Un schéma explique le genre d'intervention ou de test, le jour postopératoire où le traitement a été commencé, la durée du traitement, sa posologie et le résultat obtenu. Un graphique résume ces résultats.

Selon les auteurs, plusieurs faits ont démontré l'efficacité du produit: dans tous les cas l'œdème était moins marqué et de plus courte durée que chez les patients qui avaient subi des interventions semblables et qui, jusqu'à présent, n'avaient pas reçu ce genre de traitement anti-œdémateux.

Ces résultats s'accordent avec ceux d'autres expérimentateurs qui ont employé la trypsine en Italie. A la suite de ces résultats, les auteurs de l'article emploieront désormais ce médicament de routine dans tous les cas où l'on soupçonne que l'œdème surviendra.

PAGES OUT OF THE PAST: FROM THE JOURNAL OF FIFTY YEARS AGO

SURGICAL TREATMENT OF GASTRIC AND DUODENAL HEMORRHAGE

The first thought in the mind of a surgeon called upon to arrest bleeding is to put a ligature around the bleeding point. The employment of gastro-enterostomy or other indirect means of controlling haemorrhage from the stomach has been adopted for two main reasons: first, the difficulty, or impossibility, of finding the bleeding point; and secondly, the difficulty of dealing with it successfully when found. The ulcer and its open vessel may be adherent to the liver or to the pancreas, or it may be within a thickened, stenosed pylorus and surrounded by adhesions. I think, however, that I have shown that indirect methods are untrustworthy and followed by high mortality due to continued bleeding. It seems quite clear, however, that the direct methods should be developed and perfected if the percentage of recoveries is to be materially increased.

If the bleeding is capillary, if it comes from superficial ulcerations or from fissures, the cautery may be used and, I think, may be trusted. When the bleeding is from a vessel of some size, say a recognizable branch of the coronary, the pancreatico-duodenal, or the right gastro-epiploic, it can only be secured safely by one method, and that is by ligature. In some instances this is best accomplished by passing the ligature behind the vessel by means of a curved needle. The tissues are often friable, but we know now that it is not necessary to pull the ligature tightly enough to rupture the intima. If it approximate the walls of the artery, an adhesive arteritis will certainly and safely do the rest.—G. E. Armstrong, *Canadian Medical Association Journal*, 1: 103, February 1911.

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CHORIOEPITHELIOMA

THE report of a newer concept of management of chorioepithelioma in this issue of the Journal by Drs. Cinader, Hayley, Rider and Warwick should arouse considerable interest. This is a relatively rare condition: some 2000 cases have been reported in the literature to date. Reports from European and American sources indicate that it is a condition of extreme rarity. Those from the Philippines suggest that its occurrence is not so infrequent. Acosta-Sison attributes this to the prolific characteristic of Filipino women. This alone cannot be the answer, as a similar incidence of multiparity exists in Central America and possibly to a lesser degree in the Province of Quebec.

In the past it has been considered to be an extremely lethal disease and the original diagnosis of chorioepithelioma was questioned if fatal termination did not ensue. Recent reports on this continent have suggested that this pessimistic outlook is unwarranted. Brewer, in a paper which is currently in press, reports a 14% five-year survival among patients listed with the American Chorioepithelioma Registry. This survival rate was achieved by surgical management. Herz and colleagues reported five of 27 patients free of disease from eight to 29 months after treatment with the folic acid antagonist, Methotrexate. Further experience of this latter group suggests a markedly improved survival rate.

It must be acknowledged that there are serious differences of opinion among competent pathologists concerning the criteria required for an unequivocal diagnosis of chorioepithelioma. It is, therefore, of the utmost importance that any claim for successful management of this condition be based upon sound histological proof of the diagnosis. In this regard, two of the five survivors reported initially by Herz *et al.* cannot be accepted without reservation. In one there was a chorioadenoma destruens and in the other the pathological diagnosis was that of trophoblastic nodule. The report of Willson, at a recent meeting of the American Association of Obstetricians and Gynecologists, of a 100% survival in eight patients with chorioadenoma destruens associated with pulmonary metastases emphasizes the importance of excluding lesions other than proven chorioepithelioma in any evaluation of therapy for this type of tumour.

The theory of immunotherapy upon which Cinader *et al.* and Doniach have based their treatment would seem to have some validity. If further experience demonstrates this to be so, it provides hope of a more specific and less hazardous form of management than those presently available. The assumption of the soundness of any treatment based upon observations on two successfully treated patients is quite properly questioned by the authors of these papers. Their request for co-operation in further study is reasonable. In such a rare and lethal disease, the accumulation of individual experience in the management of sufficient patients with *proven* chorioepithelioma is difficult. These authors suggest that they would prefer to treat some patients who have not been subjected to previous operation or chemotherapy. It is unlikely that such a course at present would appeal to many gynecologists. However, there could be no objection to a trial of immunotherapy subsequent to operation or chemotherapy. If this should be associated with a reasonable improvement in survival rates, it would be justifiable to undertake trial studies of the efficacy of immunotherapy alone.

In order to determine the incidence of this lesion in Canada, the Canadian Tumour Registry should be the logical instrument for the collection of data. If other treatment is inadequate, a plea is made for referral of such patients to Dr. Cinader's group for immunotherapy. It should thus be possible to obtain an evaluation of this method of management in the shortest possible time. D.E.C.

UNION HEALTH CENTRES

DURING the past twenty years, roughly paralleling the development of the profession-sponsored medical services prepayment plans, there has evolved in the United States a radically different method for the prepayment of medical costs and the direct provision of medical services through union or community-sponsored health centres.

Elsewhere in this issue Mr. Goldberg has outlined Labour's rationale in ascribing the need for these units and in proposing their introduction in Canada. In an obvious over-simplification, he suggests that these centres, many of which are controlled directly by unions and staffed by full-time salaried physicians, combine the benefits of group practice and prepayment.

He cites as reasons for Labour's determination to introduce these in Canada: (a) the inadequacy

of existing insurance or prepayment arrangements in terms of the extent of coverage, as they exclude too many needed services or do not adequately meet the charges rendered; (b) the tremendous increase in the cost of health services and insurance; (c) the lack of organization and co-ordination in existing health care programs; (d) the inability or refusal of existing insuring and prepayment agencies to provide preventive services or health education; (e) the lack of quality control and supervision exercised over services provided or arranged under insurance.

Mr. Goldberg states that Labour's long-term answer to these problems is the implementation of a national comprehensive health program. He indicates that in the interval prior to the introduction of such a program, his Union favours the provision of services through co-operatively owned and operated health centres.

The attitudes and opinions of Labour which Mr. Goldberg has so ably expressed are of significant interest to the profession, as the Submission of the Saskatchewan Federation of Labour to the Advisory Planning Committee on Medical Care in the Province of Saskatchewan lists similar criticisms of the organization and cost of the private provision of medical services. In suggesting an overall program to offset these problems, the Submission states that the method of choice in the organization of medical services should be a type of group practice arrangement very similar to the one postulated by Mr. Goldberg.

Thus the plea to the profession for the acceptance of closed panel clinics as *one* method of providing quality medical services has been altered by Labour to a statement that this type of arrangement is the *only* method by which high-quality medical services can be provided. That the proposal has wider significance than the Saskatchewan scene is indicated in the endorsement of the Submission by the Canadian Labour Congress.

Mr. Goldberg's five premises or major criticisms must be very carefully examined. We cannot agree that the costs of medical services, as opposed to other health services, have increased disproportionately with the cost of other services within the community. The tendency to use, for comparative purposes, an index of the total cost of health care is incorrect and misleading relative to medical services, since by far the major component of this increase relates to hospital care, some of it a direct result of the implementation of a national hospitalization insurance program.

In the evolution of prepayment programs for medical services, the profession has not unnaturally considered that its primary interest should be related to medical services. Unfortunately, other professional organizations did not concern themselves to the same degree with providing means of prepayment of other needed health services. Thus we must admit that gaps exist in the health care coverage now available on a prepayment basis. It would appear that Labour wishes to cast aside the very material advances which the medical profession has made, because other agencies did not pursue a similar development. It is likely that our prepayment plans must provide additional areas of coverage for the public as a means of preserving voluntary prepayment methods.

Labour's third criticism exemplifies the attitude of many of their leaders that central planning is the ultimate cure for any problem. We quite frankly are not convinced that those countries which have employed central planning in the provision of health care have achieved an end product which is in any way superior to our own. Planning and organization does exist in medicine. Its growth has been by evolution to meet the problems which scientific changes have presented.

It is true that most of our existing prepayment plans exclude payment for some preventive services. All are, however, giving additional consideration to this problem at this time, as they are trying to correlate the public's appreciation of its need with the scientific determination of the value and required frequency of preventive examinations.

Labour's fifth criticism suggests a lack of understanding of the responsibilities of various bodies in the achievement of quality in medical care. There is a basic determination of quality which is not the responsibility of the medical profession but rather is the responsibility of our various provincial governments who, through legislation governing the health professions, set the standards required. When these standards are met, the individual doctor is provided with the legal right to practise medicine, surgery and midwifery.

The framework of organized medicine does promote quality in those areas where it is legally possible for it to do so. Whenever any member of the profession requests an appointment to a hospital staff, he must agree that he will comply with the rules and regulations which the medical staff has evolved. It is usual for quality within hospitals to be promoted through the activities of such groups as Admission Committees, Credentials Committees and Tissue Committees. Through these activities, the medical staff assumes certain responsibilities for the quality of care practised in the institution. Other organizations founded by the medical profession promote quality in medical services through their educational and supervisory functions. Some of these are the Canadian Council on Hospital Accreditation, the College of General Practice, and the Royal College of Physicians and Surgeons of Canada.

Medicine is a science in which change is an accepted standard and evolution is ever insistent. Few within the profession would suggest that the present organization is perfect. However, we must balance against our quality achievements an appraisal of the standards of the closed panel clinics which now exist. Both the American Medical Association and the Ontario Medical Association

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have conducted studies of these clinics in the United States. Their appraisals suggest that the quality of care in some clinics is very good — in others, not so good.

This conclusion should surprise no one. The quality of patient care is dependent upon the personal qualities of the physicians who provide their services. High staff standards promote a high quality of care, whether in a union clinic or in a hospital. In medicine, as in other professions which require a close personal relationship, the organization of services is of less importance than the quality of those providing services. Unions could more easily achieve their goal of quality of services by assisting those organizations which now exist for this purpose. B.E.F.

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4. American Medical Association Commission on Medical Care Plans: *J. A. M. A.* (special edition), **169**: January 17, 1959.
5. Saskatchewan Federation of Labour: Submission to the Advisory Planning Committee on Medical Care, Saskatchewan Federation of Labour, Regina, December 31, 1960.

THE ROYAL SOCIETY'S TERCENTENARY

IN THE world of science, one of 1960's most memorable events was the celebration of the three hundredth anniversary of the Royal Society of London. As the president of the American Philosophical Society observed in his recent account of these festivities (*Science*, 132: 1816, 1960), the letters "F.R.S." or "For. Mem. R.S." after a scholar's name undoubtedly indicate the highest scientific repute recognized throughout the world today, with the sole exception of that accorded the small group of scientific Nobel laureates, most of whom in any event were or are Fellows or Foreign Members of the Royal Society.

As early as 1649 the twelve distinguished men of science who founded "The Royal Society of London for Improving Natural Knowledge" were meeting together weekly at Oxford, as "an experimental philosophical Clubbe". The original twelve have been described in colourful detail by Lord Adrian in his review entitled "The Royal Society—Its Origin and Founders" (*The New Scientist*, July 14, 1960). Numbered among this distinguished group were the incomparable Sir Christopher Wren, philosopher, astronomer and architect extraordinary, and Robert Boyle, "the father of chemistry".

At a memorable meeting at Gresham College, on November 28, 1660, the twelve members drew up a list of those "judged willing and fit to joyne them in their design". There were forty-one names on this list, mostly those of Royalists or supporters of the Reformation. A week later the Society was formally constituted. King Charles II approved its design and "was pleased to ofer of him selfe to bee enter'd as one of the Society". On this list were the names of Thomas Willis, who described the arteries of the brain, and another distinguished physician, William Croone.

Though the Society's motto *Nullius in Verba* ("Take no Theory on Trust") is taken for granted today, such was not the case in 1660. It carried the implication that the members divorced themselves from the authority of the ancients expressed in the Aristotelian methods of disputation which were largely confined to discussions of what was long since accepted as "truth". The revolutionary purpose of the Society was to enlarge knowledge by observation of nature and by experiment. As Sir Cyril Hinshelwood, its current president, said, "From the time of the foundation of the Royal Society onwards there was a steady increase in the number of dedicated men who by the concentration of their minds, the skill of their hands, and the sweat of their brow, worked to uncover the secrets of nature. Their labours were largely unknown to their contemporaries, they are but perfunctorily recorded by historians, and yet they have ended by transforming the face of the globe and the life of humanity."

Such was the magnitude of the accomplishment celebrated in the London of 1960. The purpose of this nine-day celebration, in the words of its president, was to lay before the world an account of the Society's three centuries of stewardship. The extent to which these celebrations were justified was most appropriately summarized in the following words of the Queen:

"The Society has had an unbroken record of activity through three centuries, and the contribution of the Fellows to natural knowledge is as great today as ever.

"The Royal Society has more than fulfilled the hopes of its Founder, King Charles II. He gave you the Charter and your name, and he bade you apply yourselves 'to further promoting by experimental studies the sciences of natural things and of useful arts, to the Glory of God the Creator, and the advantage of the human race'. The names of Sir Isaac Newton and Charles Darwin in pure science and of James Watt, Lord Kelvin and Sir Charles Parsons in engineering science are evidence of the Society's success and recall great episodes of progress. Their contributions shine like beacons for all men to see, but let us not forget the many hundreds of Fellows whose devoted work has been indispensable to the general advance of knowledge."

For the years to come, the Society's course was thus eloquently charted in Sir Cyril Hinshelwood's presidential address:

"The task of the men of science is therefore clear. It is to go ahead undeterred by any of the uncertainties. Faith in science is not incompatible with or exclusive of any other kind of faith. Indeed there would seem to be no inconsistency in believing that scientific knowledge is itself one of the great instruments of higher ends. However that may be, duty, expediency, and the zest of living unite their voices in calling for unremitting effort, not in the certainty but in the hope and faith that knowledge may advance, mastery over environment increase, drudgery be abolished, sickness healed, the people fed, and life made happier."

LETTERS TO THE EDITOR

ALCOHOLISM

To the Editor:

We have read with interest the timely and thought-provoking articles contained in the symposium on alcoholism published in the Journal of December 24, 1960. We agree that the number of alcoholics in Canada seems to be increasing and that the proportion of them who receive any treatment at all is very small. That the present situation urgently requires rectification there seems no doubt. It is well emphasized that it is difficult for the physician to recognize and identify patients with alcoholism as they are usually masters of deception and are able to conceal successfully their alcoholic addiction. Unfortunately they are also masters of self-deception as well, in that usually they are able to conceal the true nature of their own disability from themselves.

We regret that we are not in agreement with some of the opinions expressed in the symposium. It is claimed by Dr. Bell (page 1351) that "The medical graduates of today have sufficient training in psychiatry to cope successfully with the psychological factors in the majority of alcoholic addicts." It is stated elsewhere in the same contribution that it had been found that the few psychiatrists who accepted alcohol addicts as patients reported discouraging results. These two statements do not seem to be compatible with each other. It is our opinion that the practising physician understands poorly the problems of the alcoholic and is ill equipped to give adequate therapy.

Alcoholics Anonymous is a universal fellowship of men and women whose society is based on a common desire to remain sober and to help other alcoholics. Among its members are many persons from all strata of society who have gained their sobriety and recovered a normal way of life. From this membership can be found many individuals who truly understand the personal problems of the alcoholic.

The alcoholic patient when in the early convalescent phase is often in a state of paranoia. He tends to resent any discussion about his drinking habits and regards those who attempt to do this as "sitting in judgment" or as preserving a "holier than thou" attitude. He regards those who seek to help him as lacking in knowledge of his problem, which he believes is rather unique. He finds these attitudes difficult to maintain with a member of Alcoholics Anonymous. In contrast to Dr. Bell, we find that the adage "only an alcoholic can understand an alcoholic" as being very far from being disproven. We are rather surprised that nowhere in the Journal's symposium was it stated that help for an alcoholic patient may be obtained at any time of the day or night from Alcoholics Anonymous. We believe that this organization which has helped so many people to achieve and maintain their sobriety should have been given more prominence in these columns [*See below*—Ed.].There is a reluctance among members of the medical profession to seek assistance from non-medical persons. We believe that this reluctance is correct in the majority of instances but consider that an exception should be found in treating the chronic alcoholic.

We agree that admission to hospital in the early stages of the rehabilitation of the patient with alcoholism is desirable. We also agree that after the acute phase is past "the management of the patient has just begun". It is then suggested by Dr. Hoover (page 1353) that "If the physician is interested and has the time he may decide to see the patient on a regular basis for an indefinite period to give him support and encouragement. Otherwise he should be referred to a private psychiatrist, a mental health clinic or some reputable group specifically concerned with the treatment of alcoholism." Again there is no specific mention of Alcoholics Anonymous. If this omission is inadvertent it is unfortunate; if it is intentional it is unforgivable. It seems to us that the fellowship of recovered alcoholics and the mutual discussion of addictive problems can bring nothing but support, encouragement and continued motivation to remain sober. The large membership of Alcoholics Anonymous in Canada, the United States of America and other countries all over the world is sufficient testimony of success. Why then do the profession apparently choose to ignore this form of therapy? In the editorial in this issue it is stated that "There are few situations in which a general practitioner finds himself so helpless as in trying to deal with an alcoholic patient." Perhaps in this situation some help might be found for both patient and doctor from a member or members of Alcoholics Anonymous.

The alcoholic must be made to realize that, alone, he can not recover his sobriety and that he requires assistance. This knowledge must be disseminated among the general public, who should also be informed that the cause of alcoholism is not known. The stigmata which surround the diagnosis should be dispelled. It is only when there is general acceptance of this disease as a disease that its sufferers will seek assistance in larger numbers. It is only then that the public will encourage their relatives and friends with this disease to seek assistance and subsequently regard the alcoholic in the process of rehabilitation as being in the convalescent phase of a distressing illness. The education of the general public is in our opinion the largest single factor which will improve the results of treatment of the disease.

It is claimed in the editorial that "some real advances have been made in our comprehension and management of this distressing malady". We would be most interested to know to what advances this reference referred.

In conclusion, we would like to observe that we know little or nothing about the etiology of alcoholism. As men of science we should be prepared to admit this fact. Perhaps this lack of knowledge of cause is not as important as it might seem. If alcoholism can be regarded as a disease of unknown cause, it would appear rational to try to help and treat patients with this condition with the same assiduity shown to patients with other diseases of unknown etiology.

The medical profession can do much to disseminate information about alcoholism to the general public. The profession should also remember that the experience and assistance of Alcoholics Anonymous is available to them at any time.

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We believe that the measures which we have discussed would bring about a real improvement in the management of alcoholism in this country.

S. COHEN, M.D. and
S. SPENCE MEIGHAN, M.B., Ch.B.
Regina, Sask.

[Alcoholics Anonymous was specifically mentioned on pages 1346, 1350, 1351, 1352 (Bell); 1354 (twice) (Hoover); 1359, 1360 (Armstrong); and 1384 (Editorial).—ED.]

To the Editor:

I have read with great interest the pointed comments of Drs. S. Cohen and S. Spence Meighan in their letter to you on the contents of the symposium on alcoholism.

Generally speaking, I think that their points are well taken. I do not think that most workers in this field would agree with Dr. R. G. Bell about the ability of the modern medical graduate to handle this type of problem. One chief factor in the problem is that the giving of advice or prescribing of medication usually does not work because the patient cannot or will not follow it, or even is hostile to it. Even more basic is the difficulty of getting the patient to accept the fact that he has a problem, a problem that requires a long-range rather than a short-range approach.

Even though there is no specific emphasis on Alcoholics Anonymous in my paper, the Clinic in London has a very close and harmonious working relationship with this group. The largest number of our referrals come from Alcoholics Anonymous; we suggest to every patient that they contact this group, and even do the contacting for them at times in the hope that they may find added hope and help; and arrange for members of Alcoholics Anonymous to visit patients in hospital. Thus, there is not only recognition of but also widespread use of this helpful organization.

M. P. HOOVER, M.D.,
Clinic Director.
Alcoholism Research Foundation,
London, Ont.

To the Editor:

I appreciate very much the opportunity of commenting on the letter from Drs. Cohen and Meighan regarding the symposium on alcoholism in the Journal of December 24, 1960. I would like to support my claim that "the medical graduates of today have sufficient training in psychiatry to cope successfully with the psychological factors in the majority of alcoholic addicts." It is my opinion that the courses in psychology and psychiatry for medical undergraduates today are very much better than those of 20 or 30 years ago. As an example of the possible effectiveness of the physician who is not a specialist in psychiatry, consider the experience of many industrial physicians. The experience of those industrial health clinics in Canada and the United States who have accepted the alcohol addict as a sick person, and who have modified their administrative and clinical approach to the alcoholic employee accordingly, has demonstrated that not only can the majority of those employees be helped, but for the most part this can be achieved without involving psychiatric assistance. This does not mean that the industrial physician, or even the industrial nurse, is unaware of the emotional components of an addictive situation. It does mean that they are not afraid to try to deal with them themselves and that they usually have at their command enough understanding of the whole problem to counsel the patient effectively. Some physicians are more skilled at this work than others, but by and large the medical graduate of today is more adequately trained to assess and treat emotional problems than the graduates of, say, 20 years ago.

Drs. Cohen and Meighan appear to regard this statement as conflicting with the next one, namely, "it had been found that the few psychiatrists who accepted alcohol addicts as patients reported discouraging results." In this case I am simply reporting a study made by psychiatrists themselves concerning the effectiveness of their own efforts to deal with alcohol addicts. I think that it must be kept in mind that among alcohol addicts, as elsewhere in medicine, some can be helped with surprising ease and some resist treatment altogether. It is quite possible that those who have reached the point of being referred to a psychiatrist, or who seek such help on their own, have already failed to respond to other attempts at therapy. In other words, those who might turn up early in their illness in an industrial health department, and for the most part respond favourably to treatment without psychiatric help, are on the average not as ill from a physical, psychological and social standpoint as those who discouraged the psychiatrists in Southern California. Accordingly I do not feel that the two statements are incompatible.

For these and other reasons, I must disagree with their opinion that "a practising physician understands poorly the problems of the alcoholic and is ill equipped to give adequate therapy". In my opinion the practising physician is as likely to have an open-minded, hopeful and constructive approach to the problems of the alcoholic as is the psychiatrist. Although there is much room for improvement, there has been a very encouraging change among physicians generally in their professional attitude to this kind of disability, in their willingness to try to help the patient themselves and in the effectiveness of their efforts in both medical care and counselling.

Most of the remainder of the criticism of the paper has to do with Alcoholics Anonymous. This paper was specifically prepared for presentation to the Massachusetts Medical Society. An attempt was made to develop a method of clinical orientation to alcohol addiction that might stimulate more interest among physicians generally. Although Alcoholics Anonymous is referred to at least twice in the paper, the main reason it was not mentioned more frequently is that the paper was primarily concerned with something else.

Alcoholics Anonymous has been in existence for over 25 years, and I doubt that there are very many physicians in Canada or United States who are unaware of this organization and of its unique contribution to the successful rehabilitation of the alcohol addict. Most physicians who have been at a loss as to what they can do for alcoholic patients have already taken advantage of the opportunity to refer a patient to Alcoholics Anonymous when this is possible.

A member of Alcoholics Anonymous in the United States, who has been "dry" for over 10 years, summarized the Alcoholics Anonymous situation as follows:

"The luckiest alcoholic in the world is the one who can walk into an Alcoholics Anonymous meeting and find within that organization all of the assistance he requires in setting up his life satisfactorily on a basis of permanent abstinence." Not only do most physicians know about Alcoholics Anonymous, but those in trouble with alcohol know about it. If Alcoholics Anonymous alone could cope effectively with the rehabilitation problems of all who have become addicted to alcohol, physicians would not need to be so concerned. A look at the discrepancy between the most conservative estimate of the incidence of alcohol addiction and the most generous estimate of the population of Alcoholics Anonymous even after 25 years, should be sufficient to prove that this organization by itself cannot cope effectively with a problem of this magnitude. In fact, physicians sometimes take unfair advantage of this organization and expect its members to cope with alcohol problems that are primarily a physician's responsibility.

Here are some of the practical reasons why physicians should assume the responsibility for supervising the first two years, at least, of a patient's new efforts to cope with life on an alcohol-free basis:

He may be in an area in which there is no Alcoholics Anonymous group close enough to be of any help to the patient.

Whereas Alcoholics Anonymous groups in a large city are capable of attracting a sufficiently large nucleus of strong, well-motivated members, to provide a secure basis for the step-by-step program they endorse, this is not always the case in smaller or rural areas.

Alcoholic patients who demonstrate any signs of the dulling in mental acuity which can precede the Wernicke-Korsakoff syndrome, or who have significant liver disease, or who have had convulsive seizures or delirium tremens upon withdrawal, may require repeated medical supervision and counselling for several months, regardless of whether they are a member of Alcoholics Anonymous or not. Many such patients who had formerly been failures in Alcoholics Anonymous have been helped with medical assistance and counselling.

Finally, our clinical experience in initiating motivation in the resistive alcohol addict has been exactly the opposite of the experience of Drs. Cohen and Meighan. The resistant phase referred to in their letter as "a state of paranoia" can be interrupted sufficiently to permit a rehabilitation program to get started by the physician who takes the trouble to improve his techniques in the management of these patients. A significant percentage of patients who come to a clinic do so only because a more threatening situation such as loss of job, break-up of family or commitment to a provincial or state hospital is the alternative. Many who have resisted all efforts at therapy by members of Alcoholics Anonymous can be guided into Alcoholics Anonymous by a physician, or started on some other route to successful rehabilitation. Accordingly I still believe that the old adage "only an alcoholic can help an alcoholic" is no longer true.

The Bell Clinic,
Willowdale, Ont.

R. G. BELL, M.D.,
Medical Director.

MEDICAL NEWS IN BRIEF

INTRAVENOUS UREA IN THE THERAPY OF INCREASED INTRACRANIAL PRESSURE WITH LEAD ENCEPHALOPATHY

In recent years the use of edathamil (EDTA) for the treatment of acute lead encephalopathy has reduced the incidence of severe neurological abnormalities after therapy. However, the death rate remains at 15 to 25% and this is probably due to the marked elevation of intracranial pressure which has frequently been observed during the first 48 hours after the onset of edathamil therapy. Most fatal cases have occurred during that period.

Katz describes the case of a Negro girl aged 5 who was admitted to hospital with an acute lead encephalopathy and an initial cerebrospinal fluid pressure of 90 mm. of water (*New England J. Med.*, 262: 870, 1960). She was given edathamil and 20 hours after admission her cerebrospinal fluid pressure had risen to 460 mm. of water. This increased pressure was rapidly and consistently lowered to safe levels with the aid of intravenously administered urea.

The effective use of urea to lower intracranial pressure in animals was first reported in 1927 and again in 1928. Later studies in 1950 indicated that in animals a more profound and prolonged reduction of cerebrospinal fluid pressure was produced by this agent than by glucose or sucrose. In 1955 the results of the first clinical trials were presented, and indicated that urea was useful in human beings as well.

It is recommended that a solution of 30% urea in 10% invert sugar be given by intravenous drip to produce the most consistent and prolonged results. Fluids and electrolytes must be carefully replaced, and the agent is contraindicated in the presence of renal insufficiency. No toxic effects have been noted from the use of urea and there are no persistent adverse effects on the blood pressure or blood urea nitrogen levels. However, urea must not be autoclaved, and solutions must be freshly mixed before use because it easily decomposes, forming ammonia, and it can then be quite toxic.

It is thought that the mechanism of pressure reduction is one of osmosis, not fluid loss.

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PATHOLOGICAL EFFECTS OF SMOKING TOBACCO ON THE TRACHEA AND BRONCHIAL MUCOSA

Histological examination was made of 150 lungs removed from white male patients dying in the Veterans Administration Hospital, Seattle, of causes other than extensive pulmonary disease. Data on smoking habits, occupation and place of residence were sought from the next-of-kin. Such data as well as adequate histological sections were available in 100 of the cases, and the analysis made by Knudtson (*Am. J. Clin. Path.*, 33: 310, 1960) relates to this group. Changes observed in the tracheobronchial epithelium were classified under four headings: no significant change, basal cell hyperplasia, squamous metaplasia, and atypical proliferative metaplasia. The frequency and severity of change was found to be related to the number of cigarettes smoked. Thus 5 (24%) of the 21 non-smokers showed substantial changes (squamous or atypical proliferative metaplasia) compared with 8 (40%) of the 20 light or moderate smokers (under 15 cigarettes a day) and 27 (51%) of the 53 heavy or excessive smokers (16 or more cigarettes a day). The six cigar or pipe smokers all showed the slighter changes of basal cell hyperplasia. No carcinoma *in situ* was observed. The carina was the most frequent site of the metaplasia. Normal mucous membrane was seen in 50% of the non-smokers compared with 20% of the heavy smokers.

VALUE OF PHYSICAL SIGNS IN THE DIAGNOSIS OF VENOUS THROMBOSIS

The development of thrombi in veins with the attendant risk of pulmonary emboli and interference with venous return remains one of the most important complications of a wide variety of illnesses and operations. Once developed, it is possible that the thrombotic process may be arrested by anticoagulants and the likelihood of emboli may be reduced by these agents or by division of the vein proximal to the thrombus. Since such treatment measures are not without risk, which is perhaps less than the risk of embolus from untreated venous thrombosis, they should not be adopted on the sole basis of a suspicion that venous thrombosis may be present.

Diagnosis therefore is of considerable importance. This is a simple matter in the presence of the unmistakable combination of pain, swelling, tenderness, colour and temperature changes in the extremity. The less the reaction to the process, however, the less obvious is the diagnosis and, indeed, in many cases there may be no hint of the presence of thrombi in the deep veins, nor are there any practical measures, other than physical examination, of diagnostic value. Venographic studies are generally not sufficiently accurate to warrant their widespread use and are not without risk.

In an attempt to assess the diagnostic value of the physical signs commonly associated with venous thrombosis, individually and in combination, Elliott and Robertson (*British Columbia M. J.*, 2: 501, 1960) studied the postoperative course of 1000 elderly males who had been subjected to a variety of urological procedures, in whom thrombosis might be expected to run a natural course, and for whom anticoagulants were contraindicated. These patients were examined at regular intervals following operation and special note was made of edema in the lower limbs, tenderness in the feet or calves, dilatation of superficial veins and Homans' dorsiflexion sign. Colour changes, local temperature variations and fever were soon found to be too difficult to evaluate to justify their continued recording in the study.

Of the 1000 patients in the survey, 158 developed one or more of the physical signs just described. Fifty-eight of these had more than one sign, and four showed evidence of pulmonary emboli; none of these four patients died. Of the 100 individuals who showed only one physical sign of venous thrombosis, two developed pulmonary emboli and one of these died, the diagnosis being confirmed at autopsy.

Thus the incidence of pulmonary embolism was six times as great, and the mortality three times as great in those with physical signs of venous thrombosis in the legs as in those without such signs. There is therefore no question that the physical signs of venous thrombosis are of some diagnostic value, though how precise they are is difficult to determine. Elliott and Robertson suspected strongly that not all of their 158 patients with physical signs had actual venous thrombi and conversely that a number with no physical signs did have thrombi in their leg veins. They concluded that it was probable that the physical signs described are highly inaccurate criteria for the diagnosis of venous thrombosis, and that the difficulty of establishing the accurate incidence of this disorder in a large series of patients is very great. For this reason there would be correspondingly great difficulty in assessing the merits of any form of treatment.

PULMONARY VASCULAR RESISTANCE AFTER REPAIR OF ATRIAL SEPTAL DEFECTS IN PATIENTS WITH PULMONARY HYPERTENSION

Eleven patients with atrial septal defects and pulmonary artery systolic pressures higher than 60 mm. Hg were studied before, and three to 34 months after, closure of the atrial septal defects by Beck *et al.* (*Circulation*, 22: 938, 1960). Significant postoperative reduction in mean pulmonary artery pressure and pulmonary blood flow occurred, averaging 21 mm. Hg and 3 litres per minute, respectively. In the nine patients in whom it was measured, the pulmonary arterial wedge pressure exceeded the preoperative right atrial pressure by an average of 6 mm. Hg, with a range of 2 to 12.

The pulmonary vascular resistance increased after operation in one patient from 760 to 850 dynes seconds $cm.^{-5}$ In the three patients who had preoperative pulmonary vascular resistances of more than 600 dynes seconds $cm.^{-5}$, together with postoperative studies, it decreased by an average of 72%; in five patients, who had preoperative values ranging from 190 to 460 dynes seconds $cm.^{-5}$, the average decrease was 26%. Postoperative measurements of wedge pressure were not obtained in the remaining two patients. The reduction in vascular resistance apparently is caused by reduction in vasomotor tone or regression of organic obstructive changes or both.

The findings in this study suggest that the level of pressure within the pulmonary artery is a factor regulating the degree of vasomotor tone in these abnormal vessels.

(Continued on advertising page 40)

COME TO MONTREAL IN JUNE!

FOR THE

94th ANNUAL MEETING OF

THE CANADIAN MEDICAL ASSOCIATION

JUNE 19-23, 1961

Canadian National Railways

OLD AND NEW, SIDE BY SIDE—that's Montreal. In the heart of the city, the Queen Elizabeth Hotel, site of the 1961 Annual Meeting, looms in the background, and across the street is the Cathedral of Mary Queen of the World, a reduced replica of St. Peter's in Rome. In June, Dominion Square will be filled with evening folkdancers and outdoor art exhibits, all part of the unique atmosphere that marks Canada's largest city.

MEETING HIGHLIGHTS

The Scientific Program this year will concentrate on Teaching Sessions, which are designed to inform general practitioners of new developments in diagnosis and treatment. These will commence Tuesday morning, June 20, and will continue throughout most of the following two days. These sessions are in the nature of refresher courses and include panel discussions in medicine, surgery, pediatrics, anesthesia, obstetrics and gynecology.

The General Sessions, Wednesday and Thursday, will include three special speakers in medicine, anesthesia and psychiatry, and will be highlighted by the Lister Oration Thursday morning. Friday, June 23, has been set aside for Medical Economics day, and will include a number of addresses and panel discussions on medical services insurance and other economic matters of topical interest.

As in former years, there will be church services on the Sunday preceding the commencement of the Meeting.

All major sessions will be simultaneously translated into French or English.

The Annual General Meeting on Wednesday night will be the highlight of the convention. The incoming president, Dr. G. W. Halpenny, will be installed; His Excellency the Governor-General, Major-General Georges P. Vanier, will be invested with an Honorary Membership in the C.M.A.; and various Senior Memberships awarded. This event will be followed by the President's reception and dancing.

A full week of social events has been planned for your enjoyment. Monday evening will feature a wine-tasting party at which a number of domestic and imported wines may be tasted. The dinner for the General

(Continued on page 350)

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BIENVENUE À MONTRÉAL
le 19-23 JUIN, 1961

With the approach of the 94th Annual Meeting of the Canadian Medical Association, it gives me great pleasure to welcome you to Montreal.

The members of the Quebec Division look forward with enthusiasm to returning some of the kind hospitality which we have received in so many cities across Canada.

W. Gordon Mitchell

DR. G. W. HALPENNY

Our Committees have planned an interesting scientific and social program with many unusual features. Detailed accounts of this program will be published in subsequent issues of the Journal.

With governments and political parties attempting to solve the problems of medical care, the Canadian Medical Association needs the support of every doctor in Canada, if it is to offer the wisdom and the strength of a united leadership. We hope that there will be a large attendance on the day we have set aside for a full discussion of these problems.

May I extend my personal invitation to every member to be present at this Annual Meeting.

J'invite particulièrement mes confrères de langue française de tout le Canada à assister à ce 94e congrès annuel. Les programmes scientifiques et sociaux sont déjà complétés et je suis sûr que tous trouveront un grand avantage à y participer. Le colloque sur l'économie médicale sera d'une importance primordiale car la solution des problèmes que nous affrontons aujourd'hui peut affecter le sort de tous les practiciens du pays. Les membres de la Division du Québec s'efforceront, j'en suis certain, de recevoir comme il convient leurs confrères des autres provinces.

GERALD W. HALPENNY, M.D.,
President-Elect

The *Canadian Medical Association Journal* has kindly given me this opportunity to invite the doctors' wives from across Canada to the 94th Annual Meeting. A very warm welcome awaits you in Montreal.

The members of the Ladies' Committee look forward to meeting you, and their program has been specially arranged to allow you to enjoy our historical and

W. Gordon Mitchell

MRS. G. W. HALPENNY

cosmopolitan city. We feel that our planned events will be of unusual interest to everyone. Our Hospitality Centre will offer you a wide choice from among the innumerable attractions of Montreal, and our ladies will be happy to accompany you on shopping ventures if you so desire.

Built around Mount Royal, the mountain inside a city, Montreal has a special charm, much of which lies in the atmosphere created by its French founders. I am sure you will feel the enchantment of this unique city. It will give me great pleasure to welcome you in June.

Puis-je adresser une invitation particulière aux épouses des médecins de langue française? J'espère qu'elles assisteront en grand nombre à ce congrès. Le comité des dames sera enchanté de les recevoir et de leur aider à faire de cette visite dans la métropole canadienne, la deuxième plus grande ville française du monde, la plus agréable qui soit. Je vous souhaite personnellement la bienvenue et j'anticipe le plaisir de vous rencontrer à Montréal au mois de juin.

KAYE HALPENNY

HOUSING APPLICATION FORM

The Canadian Medical Association
94th ANNUAL MEETING - June 19 - 23, 1961
MONTREAL, QUEBEC

Apply direct to the:

Reservations Manager,

Hotel.....

Address.....

Please reserve the following accommodation (check): (All rooms have baths and/or showers.)

Single bedroom..... Twin bedroom.....

Suites for one person (bedroom and parlour).....

Suites for two persons (bedroom and parlour).....

Suites for four persons (2 bedrooms and parlour).....

Family Plan—no charge for children under 14.....

In view of the large attendance expected, it might be to your advantage to share a room with another member. Please mention below the names of the persons with whom you would like to share your accommodation; otherwise assignment will be suggested by the Committee on Arrangements.

I (we) will arrive in Montreal on June.....at.....A.M.....P.M.

I (we) will depart from Montreal on June.....at.....A.M.....P.M.

Travelling by: Air..... Train..... Automobile.....

NAMES OF PERSONS OCCUPYING ACCOMMODATION REQUESTED ABOVE:

.....

.....

ADDRESS(ES).....

.....

TELEPHONE No.....

N.B.—(1) A list of hotels and motels is shown on the following page with daily rates.

(2) Confirmation of housing will be made direct from hotel or motel.

THIS WILL CONSTITUTE YOUR ADVANCE REGISTRATION FOR THE MEETING.

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HOTELS AND MOTELS AVAILABLE FOR THE ANNUAL MEETING

Montreal, Quebec, June 19 - 23, 1961

Daily rates

THE QUEEN ELIZABETH:
Dorchester St. West,
Montreal, P.Q.

Single Bedrooms	$10.00 to $20.00
Twin Bedrooms	14.00 to 20.00
Two-room Suite (parlour and bedroom)	36.00 to 50.00
Three-room Suite (parlour and bedroom)	57.50 to 70.00
Four-room Executive Suite (parlour, 2 bedrooms and dining room)	90.00 to 110.00
Family Type (studio double and deck beds)	16.00 to 20.00
Portable Bed for Additional Person at	4.00 per day

No charge for children 14 years of age and under, if sharing same accommodation as parents.

Free Parking.

THE SHERATON-MOUNT ROYAL HOTEL:
1455 Peel Street,
Montreal, P.Q.

Room and Bath for one	$ 8.50 and up
Double Beds for two	12.00 and up
Twin Beds for two	13.85 and up
Suites for one person	24.50 and up
Suites for two persons	28.00 and up
Suites (2 rooms-parlour) for four	44.00 and up

Family Plan—Free Parking.

LAURENTIAN HOTEL:
Dominion Square,
Montreal, P.Q.

Single Bedrooms	$ 8.50 to $ 9.50 to $10.00
Double Beds	12.00 to 12.50
Twin Beds	12.50 to 13.00
Suites for one or two	21.00
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Montreal, P.Q.

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Double Bedrooms (including twin beds)	14.00 and up

BOOK REVIEWS

THE SURGICAL TREATMENT OF PORTAL HYPERTENSION, BLEEDING ESOPHAGEAL VARICES AND ASCITES. American Lecture Series. M. Judson Mackby. 250 pp. Illust. Charles C Thomas, Springfield, Ill.; The Ryerson Press, Toronto, 1960. $11.50.

As the author states in the first sentence of his preface, this book is intended to be primarily a manual of practical clinical management of patients suffering from cirrhosis of the liver with the three serious complications, namely, portal hypertension, bleeding esophageal varices and ascites. The author does deal with extrahepatic block due to obstruction of the portal vein but the main emphasis of the book is on intrahepatic block secondary to portal cirrhosis.

The author deals with the basic physiological and pathological concepts of the development of portal hypertension and also has a useful chapter on the disordered ammonia metabolism which occurs in cirrhosis of the liver along with ammonia intoxication. Wherever possible he gives an interesting historical review of the subject matter which he is about to discuss. In this respect, he gives an excellent review of the fallacy of the "Banti's disease" concept, a concept which still unfortunately persists in the minds of many doctors at the present time.

He has quite a good chapter on the diagnosis of bleeding esophageal varices but in this chapter he fails to stress the taking of an accurate history of the patient, and the ordinary clinical examination of the patient. He fails to stress, too, the fact that ordinarily an enlarged hard liver will be felt and, above all, an enlarged hard spleen will be felt. Furthermore, other evidences of liver disease such as liver palms and spider nevi are not even mentioned.

He describes the problems of the diagnosis of esophageal varices in a patient who is bleeding, but again fails to mention the value of the simple procedure of esophagoscopy to visualize the varices. The author rightly stresses the virtue of emergency splenoportography but makes no comment on the fact that it is possible to get an accurate measure of the portal pressure by means of the needle in the spleen connected to pressure recording apparatus. Thus he favours the use of the hepatic wedge pressure as a means of estimating the portal pressure before operation, whereas taking the intrasplenic pressure at the time a portal venogram is done is so extremely simple. Furthermore, in the needle biopsy of the liver he is advocating the use of the Vim-Silvermann needle whereas nowadays there are some much better needles, such as the Terry liver biopsy needle, whereby a liver biopsy of very adequate size can be guaranteed, a claim which cannot be made for the Vim-Silvermann needle, even in the best of hands.

There is an excellent chapter on the emergency control of esophageal hemorrhage with detailed instructions on the management of the Sengstaken tube. Emphasis is correctly placed on the emergency ligation of esophageal varices. The impression one gains from this book is that the transthoracic route is favoured, whereas the reviewer would be strongly in favour of the transabdominal route. Using the transabdominal route, the operator can cross the esophagogastric junction quite readily and can ligate the varicose veins both in the stomach and in the lower esophagus very effectively. The author also rightly stresses the virtue of emergency portacaval shunt. He is rather critical of Tanner's operation of gastric bisection. In general this procedure is condemned these days because of the high mortality of the operation. However, as is shown in this book, the people who condemn the operation do so chiefly because they do not know how to perform it. The operation as performed by Tanner with the use of hemostatic clamps, does not cause an undue loss of blood and is quite effective as a temporary measure.

The account of the various shunt procedures and particularly the detailed description of the portacaval and splenorenal shunts are good. Every surgeon will have his pet technique for these operations but by and large those covered in this book provide a thorough practical approach to the problem. In describing the portacaval shunt the author might have mentioned the importance of individual ligation of the right and left branches of the portal vein where possible, because this gives a much longer portion of portal vein to swing down to the inferior vena cava. The author also mentions that the inferior vena cava should be completely mobilized with tapes slung around it. This the reviewer would disagree with quite strongly, as some branches of the inferior vena cava may be torn in providing this degree of mobilization and it is entirely unnecessary. Only the anterior surface of the inferior vena cava need be cleared and mobilized to permit application of a suitable partially occluding clamp.

Similarly, in discussing splenorenal anastomosis the author suggests that the kidney should not be mobilized. Again, the reviewer would disagree with this view, as by mobilizing the kidney and slinging it up on tapes, one can obtain a much better anastomosis as the organ is brought up into the wound.

In the discussion on ascites, the author rightly emphasizes the fundamental value of medical measures in the treatment of this condition. Indeed, in the whole book one is struck by the author's moderation in his whole approach to this difficult problem of cirrhosis of the liver and its complications. He does not approach the subject with the rabid fervour of a surgeon but rather with the balanced judgment of a doctor who is well versed in his subject as a whole. All types of treatment for portal hypertension and for ascites are duly mentioned and the appropriate approval or condemnation is recorded in each case. Here one would have liked to see a little more reference and weight given to the British literature on this subject. Milnes Walker of Bristol and Hunt of London have contributed considerably to this subject, and rather scant reference to their work has been made.

The bibliography at the back of the book is tremendous; 1354 references are listed.

In summary, this is a useful book on the whole subject of cirrhosis of the liver. It gives a balanced judgment on the surgical forms of therapy which are available and it gives due consideration to the diversity of opinions which are held in this field at the present time. As always, Charles C Thomas has provided an excellent format for the book and first-class illustrations.

Canad. M. A. J.
Feb. 11, 1961, vol. 84

HUMAN TORTOISES: A SPASTIC'S STORY. Peter Godwin. 143 pp. Max Parrish and Co. Ltd., London; Clarke, Irwin & Company Limited, Toronto, 1960. $2.75.

This is a biography of an athetoid patient with good intelligence. It presents clearly the problems which confront the person with cerebral palsy. He feels very bitter about the attitude many people took towards his disability, and yet grateful for the many others who helped him. He is thoroughly convinced that physical therapy is of no value, unless it is to train the patient to relax. He has had surprising relief with drugs such as Artane, Kemadrin and Soneryl. If the medical profession is to learn one thing from this pathetic story, it would be to study more intensively the effects of drugs in an attempt to control abnormal movements.

THE CASE REPORTS AND AUTOPSY RECORDS OF AMBROISE PARE. Edited by Wallace B. Hamby. 199 pp. Charles C Thomas, Springfield, Ill.; The Ryerson Press, Toronto, 1960. $7.25.

Dr. Hamby has taken as his text the modern-French translation of "Œuvres complètes d'Ambroise Paré (1510-1590)", published in Paris by J. P. Malgaigne in 1840. He has selected and translated from this work only those observations which Paré made and recorded on his own patients. Many of these were military casualties. In the successful treatment of these patients the outstanding advances of ligature to replace cautery for hemostasis and the application of bland dressings rather than scalding oil to gun-shot wounds are clearly described. His humanitarianism and his meticulous attention to detail are evident also in the case reports taken from his far-ranging civilian practice. He makes the observation (page 32) that open wounds should be closed by suture to protect them from the air "which does much harm to such wounds". A similar observation recorded by Joseph Lister in the *Lancet* in 1867, backed up by Pasteur's discovery of bacteria, established the era of antiseptic surgery.

Paré's self-effacing piety is shown by his oft-repeated phrase, "I dressed him, God healed him."

This little book, therefore, gives the reader a vivid picture of French surgery in the 16th century as practised by an acknowledged master of the art.

HANDICAPPED YOUTH. A REPORT ON THE EMPLOYMENT PROBLEMS OF HANDICAPPED YOUNG PEOPLE IN GLASGOW. Thomas Ferguson, Professor of Public Health, University of Glasgow, and Agnes W. Kerr. 141 pp. Illust. Oxford University Press, London, New York and Toronto, 1960. $2.25.

Professor Ferguson, who occupies the Chair of Public Health, University of Glasgow, and Miss Kerr, have carried out a study on almost 1000 handicapped young people after they left school. Of these, nearly 600 had a physical disability, while 400 were young people who had been attending special schools for the mentally handicapped.

From this report it is clear that cardiac cripples can in many instances be gainfully employed, but they do need help in job placement. A considerable proportion of the children with physical disabilities also have additional social and environmental difficulties which militate against successful employment. Certain of the children, such as those suffering from tuberculosis, were educationally retarded owing to loss of schooling. This should not be allowed to happen in a relatively wealthy community.

This report is well written and timely. It would be a good thing if professors of public health and medical officers of health in Canada were to attempt similar projects. Merely to talk about chronic disease and disability does not solve any problem or help any person.

WELCOME TO MONTREAL!

(Continued from page 345)

Council will be held as usual on Tuesday evening. Golfing enthusiasts will also have an opportunity of competing for the annual trophy.

There will be a special ladies' program for doctors' wives, and the centre of activity will be the hospitality room where ladies will meet and plan their day's activities. As well as joining their husbands in the general social program, ladies will lunch at the Montreal Museum for Fine Arts on Wednesday, June 21; and on the following day, Canadian-born Mrs. William Mackersie, president of the Women's Auxiliary of the American Medical Association, will address a luncheon meeting. Plenty of local sightseeing and shopping excursions will be available to make the ladies' stay in Montreal a memorable occasion.

Additional details and adjuncts to the scientific and social programs will be published in the Journal as the time of the meeting approaches.

A Word About Montreal

Montreal is Canada's largest and greatest tourist city, and its unique charm and atmosphere, its friendliness, hospitality and the courtesy of its citizens, have accounted for its tremendous popularity with visitors from Canada and abroad. Of interest to the visitor is the fact that Montreal is an island which is 30 miles long, between 7 and 10 miles wide, and has an area of 194 square miles. The city proper occupies about half of the island, being 50 square miles in area. It is the second largest French-speaking community in the world, being second only to Paris, France. While three-quarters of the population are of French Canadian origin, and the balance, mainly of Anglo-Saxon and other origins, the city is almost totally bilingual.

Montreal's leading hotels are the Queen Elizabeth, the Sheraton Mount Royal, the Laurentien, the Windsor, the Queen's, the Hotel de la Salle, the Berkeley, the Ritz Carlton, the Royal Embassy, and the New Carlton Hotel. All of these hotels feature fine food in their dining rooms, and luxurious and comfortable appointments.

More news about our host city will appear in subsequent issues of the Journal.

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MEDICAL NEWS *in Brief*

(Continued from page 344)

ARTERIAL LESION IN RHEUMATOID ARTHRITIS

An unusual x-ray technique that is said to demonstrate that arterial damage is the primary lesion in rheumatoid arthritis was reported by Prof. A. Leb, Chief of Radiology, University Hospital, Graz, to the 14th Austrian Physicians' Congress. Damage to the arteriovascular tree leads first to periarticular soft tissue fibrosis, and only much later to conventional x-ray bone changes. Using arteriography in combination with hard rays and underexposed, underdeveloped film, an excellent picture is obtained of both soft tissue and bone. Among the early changes observed through such x-rays, Dr. Leb described marked diminution of the number of arteries supplying a joint region in rheumatoid arthritis, followed by diffuse fibrosis and obliteration of muscular interspaces.

Delayed absorption of an absorbable contrast medium injected intra-articularly indicated vascular damage early in the disease. With normal finger bones and near-normal configuration of the hand, there may be marked arterial damage, with marked periarticular fibrosis and obliteration of both phalangeal arteries beginning at the middle phalanx.—*Medical Tribune,* December 12, 1960.

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CORTICOSTEROID INDUCED PEPTIC ULCER

Ninety-four patients, most of whom had systemic lupus erythematosus requiring large doses of corticosteroids, were given serial upper gastrointestinal x-rays at intervals of three months. Dubois, Bulgrin and Jacobson report that the incidence of peptic ulcer in 41 patients treated with salicylates and antimalarials was 5% (*Arthritis & Rheumat.*, 3: 442, 1960). Nineteen patients, or 20% of the steroid treated group, developed peptic ulcers.

In 18 cases where definite ulcer craters were found, 12 were gastric in location and six duodenal. The occurrence of ulceration was directly proportional to the dosage of corticosteroid employed. There

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MEDICAL NEWS *in brief*

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was no statistically significant difference in incidence of ulceration between prednisone, prednisolone, methylprednisolone, triamcinolone, or dexamethasone. Converting the dosage of steroids utilized to prednisone equivalents, the incidence ranges from the occurrence of no peptic ulcers below 10 mg. per day, 4 to 23% from 10 to 59 mg. per day, and 47% when the dosage was over 60 mg. per day for two months or more. Prophylactic ulcer regimens were not routinely emphasized. However, four patients who developed ulcers had been on such a program. One of them had a deformed duodenal bulb and ulcer symptoms at the start of therapy, and the other three received the highest doses of the steroid, namely 100 mg. per day of prednisone, 96 mg. per day of triamcinolone and 144 mg. per day of methylprednisolone.

Ulcer symptoms were present in 14 of the 19 patients with lesions. Two others were psychotic. In two additional patients the ulcer craters appeared and fully healed without symptoms, change in steroid therapy or ulcer regimen.

A total of 31 patients, of 94 given the newer corticosteroids, had ulcer symptoms, and 14 of the symptomatic cases developed proved peptic ulcers. Consequently, complaints of dyspepsia during steroid therapy should be given serious consideration and a full ulcer regimen begun. Prophylactic ulcer therapy should be used in all patients with a history of this disease or those receiving over 100 mg. per day or more of prednisone or its equivalent for periods of several weeks or longer.

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CANADIAN HEALTH STATISTICS – 1960

Canada has had a very favourable health record in 1960, according to Dr. Wallace Troup, Medical Director of the Metropolitan Life Insurance Company in Canada.

The death rate in 1960 is estimated to be less than 8 per 1000 population or slightly under that for 1959 and about the same as in 1958, when Canada had an all-time low. A major factor in the decline in the death rate in 1960 is the lessened mortality from pneumonia and influenza. This is reflected in a small decline in the death rate from heart disease. On the other hand, indications are that the death rate from cancer increased slightly.

A notable feature of the 1960 health record has been the continued decline in the mortality from tuberculosis. The death rate from the disease is now at the remarkably low level of about 5 per 100,000 population. This is only about one-fifth the rate 10 years ago and only one-tenth that of 20 years ago.

Another encouraging aspect of the record is the decrease in numbers of cases and deaths from paralytic poliomyelitis to less than half the totals reported for 1959. A little over 800 cases were reported in Canada during 1960, compared with somewhat over 1800 cases the year before. The number of deaths from poliomyelitis dropped from

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MEDICAL NEWS *in brief*

(Continued from page 42)

182 in 1959 to about 75 in 1960. Significantly, in about three-fourths of the fatal cases for which this information was available the patients were not vaccinated. It is noteworthy that the poliomyelitis incidence in 1960 was well above that for the years 1956-1958.

The principal communicable diseases of childhood—measles, scarlet fever, whooping cough, and diphtheria—together recorded a death rate of under 1 per 100,000 population, or less than one-fourth the rate a decade earlier.

The birth rate in Canada continued high in 1960. The number of babies born was only about 2% less than the record year 1959. Indications are that the infant mortality rate was again below 30 per 1000 live births, the third year in succession in which this low level has been reached. Childbearing has never been safer, with maternal mortality rates at about 5 per 10,000 live births.

Some progress appears to have been made in 1960 in controlling the death toll from motor vehicle accidents. Preliminary figures show a slight reduction in the death rate from this cause. The concerted efforts to improve the care of those injured in road accidents may be expected to cut down further the number of motor vehicle fatalities.

"The splendid health record of Canada in 1960 is gratifying," Dr. Troup said, "and there is good reason to expect continued improvement. With nearly half of all deaths in Canada being due to cardiovascular disease and with nearly one-sixth to cancer, research in these conditions must obviously be depended upon for reduction in total mortality rates. In fact, the success achieved in controlling the mortality from the chronic diseases of middle and later life will largely determine the course of mortality in the years to come. The Canadian death toll from accidents is unnecessarily high and there can be no let-up in the aggressive and expanding safety program."

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MARROW IMPLANTATION AND RADIATION THERAPY

Use of bone marrow implantation may substantially extend the range of radiation therapy for cancer. A small sample of the patient's own bone marrow is removed from the body before radiation treatment, frozen, and stored at an extremely low temperature. After intensive irradiation to the body, which damages marrow and reduces its ability to produce blood cells, the stored marrow is returned to the patient's body.

Dr. N. B. Kurnick of Long Beach, California, reports that the blood count in some of the patients so treated returned to normal within two to four weeks. This is in contrast to months and years required for recovery of damaged bone marrow in patients who did not receive the marrow implants. More than 80 bone marrow samples have been stored and implants have been performed in 21 patients who have a wide variety of cancers, including Hodgkin's disease, acute leukemia, and several types of carcinoma.

These results would seem to indicate that the marrow can be collected, stored, and implanted without problems of tissue rejection or secondary disease.